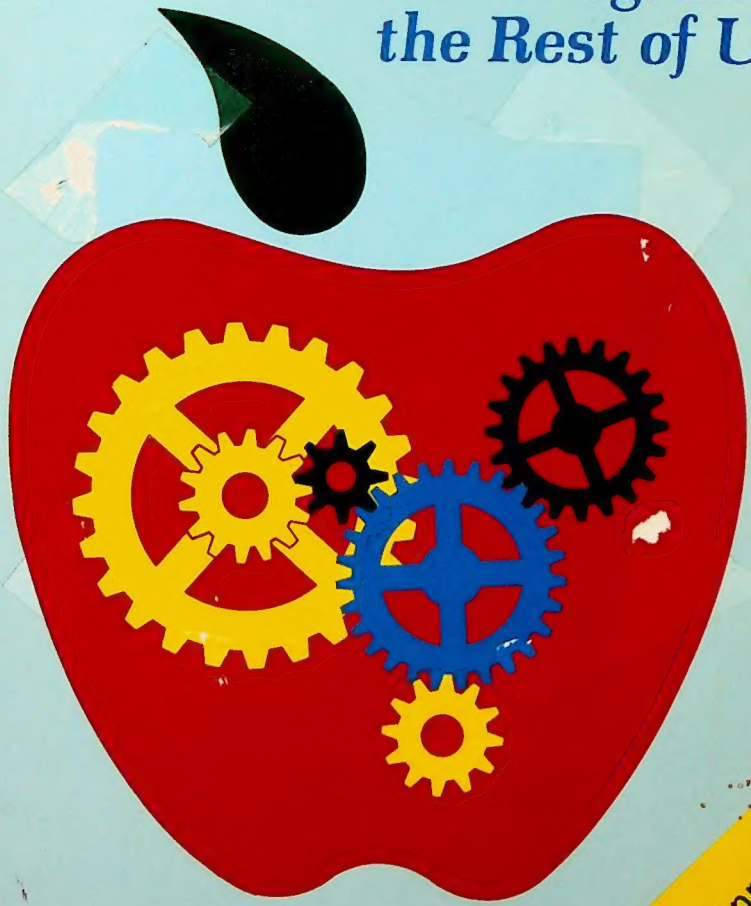
AppleWorks

The Program for the Rest of Us



For Apple II+, //e and //c Users

Michael L. Sloan

APPLEWORKS
THE PROGRAM FOR
THE REST OF US

7/30/86

APPLEWORKS THE PROGRAM FOR THE REST OF US

Michael L. Sloan

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CHAPTER

1 STARTING OUT IN APPLEWORKS

This chapter consists of four sections. The first was written for those of you who are just starting to use your computer. The remaining three sections are for everyone using AppleWorks for the first time. If you are already familiar with the startup and printer configuration of AppleWorks and have already made copies of your AppleWorks Startup and Program disks, please feel free to skip this chapter and go on to Chapter 2.

I. YOUR APPLE COMPUTER

Your computer system consists of a number of components connected together (similar to a component stereo system). The main component is the Apple // itself. It processes all of the computer information (words, numbers, etc.) and plays the same kind of role as an amplifier does in a stereo system.

Just as your stereo system gets its musical information from a record turntable, for example, your Apple gets information from its keyboard. And, just as your stereo can record and play music from its cassette tape recorder, your Apple can store and retrieve information with its disk drive(s). Finally, as your stereo outputs music to speakers, so your computer outputs data to its monitor screen and printer.

Connecting the individual pieces of your computer system is fairly straightforward. But if you are not sure about how to connect your system together, *have your Apple dealer show you how.*

The Apple Keyboard

The Apple //e and //c have virtually identical keyboards. In fact, the only difference is the location of the key marked RESET. (*Note:* The Apple][+ keyboard is discussed in the next section.) While the layout of the keyboard is similar to a typewriter's, there are some differences and added features you should know about.

First, your computer distinguishes between the letter "O" and the number "0" and between the letter "l" and the number "1."

As with a typewriter, you will use the SHIFT key to get capital letters as well as the *upper* symbol on any key. For example, look at the second key from the left on the top row of keys. If you type this key by itself, you'll produce a "1" character. If, however, you hold down the SHIFT key while you press the "1" key, you'll get a "!".

Now look at the key marked CAPS LOCK. It's at the lower left corner of the keyboard. This key is actually a two-position switch. Press it once and it locks in the "down" position; press it again and it returns to the "up" position. With the CAPS LOCK key in the down position, all alphabetic keys (A, B, etc.) will print in upper case (i.e., capital letters). CAPS LOCK does *not* affect any other keys. (You still have to use the SHIFT key to get an exclamation point!)

On the left side of the keyboard is a key marked CONTROL. This key is used the same way that the SHIFT key is used. That is, you hold the CONTROL key down while you type another key. The effect of using the CONTROL key is not as obvious as when you use the SHIFT key. First, the CONTROL key only modifies 32 of the keys on the keyboard—all 26 alphabetic keys (A-Z) and the following 6 symbol keys: @, ^ , _, [,], and \ . The combination of using the CONTROL key with one of these 32 keys produces what is called a *control character*. Control characters do not show up directly on the screen or on the printer, but they are used to produce special effects such as underlining or bold printing which will be discussed later.

At the bottom of the keyboard, on either side of the wide space bar, are two keys with apple symbols on them. The key on the left is called the OPEN-APPLE key; the key on the right is the CLOSED-APPLE key. These keys are used the same way that the SHIFT and CONTROL keys are used: You hold one of the Apple keys down while you type some other key. Almost all commands in AppleWorks are produced with this combination. While AppleWorks refers to using the OPEN-APPLE key, either the OPEN-APPLE or the CLOSED-APPLE key can be used to produce the same effect. *Note*: While the OPEN- and CLOSED-APPLE keys can be used interchangeably in AppleWorks, this may not be true in other Apple programs.

The key marked ESC (called the ESCAPE key) is at the upper left corner of the keyboard. AppleWorks uses this key to move from one part of the program to another.

At the upper right corner of the keyboard is the DELETE key. AppleWorks uses this key to delete (erase) the character immediately to the left of the cursor—usually the last character typed.

Finally, there are the four cursor control keys in the lower right corner of the keyboard. The cursor is an indicator (either a blinking underline symbol or a blinking box), on the monitor screen, showing where the next character typed will appear. The cursor keys allow you to move the cursor—up, down, left, or right—so that the next character typed can be anywhere on the screen.

One caution: All keys on the keyboard are repeating keys. This means that if, for example, you hold the "A" key down for more than half a second, you'll get several A's. This is particularly important when you press special keys like the ESC or RETURN keys, because generating several ESC or RETURN characters instead of one may produce unexpected results. You are encouraged to develop a light touch at the keyboard.

II. COMPUTER COMPONENTS FOR APPLEWORKS

In order to use AppleWorks, your Apple computer system will have to contain certain required components. This is true for all computer programs, but the components vary from one program to another and from one model of computer to another.

Using AppleWorks with an Apple][+

AppleWorks was originally written for the Apple //e and Apple //c models. This meant that those million or so Apple][+ owners couldn't use AppleWorks. Recently, two companies, Videx, Inc. and Checkmate Technology, Inc., have marketed solutions to this problem. Both companies sell 80-column boards and a special disk that modifies AppleWorks to operate with an Apple][+.

If you own an Apple][+ and you want to use AppleWorks, you will need to add one of these 80-column boards (VideoTerm or UltraTerm from Videx, Inc., MultiView from Checkmate Technology, Inc.) and a 16K RAM memory board (available from Microsoft Corporation). The 16K board is necessary because your Apple must have a minimum of 64K of memory (the other 48K is on your Apple][+'s motherboard). (*Note:* Computer memory is discussed later in this chapter.) You will also have to add a wire inside your Apple][+. This is called the *shift key modification*, and it is described in detail in the documentation that accompanies either company's 80-column board.

Because the Apple][+ does not have OPEN-APPLE, up- or down-arrow, TAB, DELETE, or CAPS LOCK keys, these functions must be generated some other way. With the Videx solution, combinations of keys are used to substitute for those missing keys. For example, CONTROL-I replaces the TAB key. CONTROL-A produces the same effect as pressing the OPEN-APPLE key. Pressing both the SHIFT and the RETURN keys

replaces the DELETE key. The combination of SHIFT and left-arrow generates an up-arrow, and so forth.

The modification from Checkmate Technology works about the same. The major difference is that you need to plug a joystick into your Apple][+. The button on the joystick then becomes the OPEN-APPLE key.

Whether you own an Apple][+, //e, or //c, your system will have to contain additional components besides the computer itself. The following list of computer components is divided into two groups—those for the][+ and //e, and those for the //c.

The Apple][+ and //e Systems

DISK DRIVES

AppleWorks requires at least one disk drive, although two drives make some operations, such as copying disks, easier.

AN 80-COLUMN TEXT CARD

There are three types of 80-column text cards available from Apple for the Apple //e. The standard version provides your Apple //e with the ability to display 80 characters per line of text on your screen. (The Apple //e by itself displays only 40 characters per line.) AppleWorks *requires* an 80-column display.

The second version of this card is called the Extended 80-Column Text Card. This card provides your Apple //e with an 80-column display and doubles the internal memory of your //e from 64,000 (64K) bytes to 128,000 (128K) bytes. (*Note*: One byte of memory can hold or store one character of information. The letter "A," the number "5," and the symbol "=" are each characters.) The internal memory of your Apple (called random access memory or RAM) is where both the AppleWorks program instructions and the AppleWorks documents you're currently working on are kept. Doubling your //e's RAM memory increases the amount of memory available for your personal AppleWorks files from 10K bytes (in a 64K system) to 55K bytes (in a 128K system).

The third type of 80-column card adds the ability to operate an RGB color monitor to the Extended 80-Column Text Card, mentioned above. It's called the Extended 80-Column/AppleColor Card (see the discussion on monitors below).

MONITORS

Monitors come in either monochrome (one color, usually green) or color. If you decide that you want a color monitor, don't try to connect your Apple

to your television set or to a standard composite video color monitor. If you do, you'll find that the 80-column display is almost unreadable. If you feel you must have a color monitor, then you have two options. First, you can use two monitors, one monochrome, the other composite color (or your own television set). Second, you can purchase what is called an RGB color monitor. This type of monitor has much better resolution than an ordinary color monitor and can clearly display 80-column text. And, in order to use an RGB color monitor with your Apple //e, you'll need a special RGB interface card such as the Extended 80-Column/RGB Apple-Color Card mentioned above. Apple][+ owners will have to buy a separate RGB interface board.

PRINTER INTERFACE CARD

The printer interface card allows your computer to communicate with your printer. Printer interface cards are of two types, serial and parallel, and the only thing you have to be careful of is that your printer and printer interface card are the same type—either both serial or both parallel.

There is one other caution. If you purchase a non-Apple brand printer interface card (e.g., Grappler, Tymac, etc.), you will have to perform one extra step in the process of setting up AppleWorks to work with your printer. This process is discussed later in this chapter.

PRINTER

Here the choices are many and varied. The only suggestion I have is that you see the printer of your choice in operation and look at its output (quality of printing, speed, special features, etc.) before you buy it. Remember that your printer interface card and printer must be of the same type, either both parallel or both serial. If you buy all of your computer equipment, including the AppleWorks program, from the same computer dealer, you can be fairly sure that everything will work together.

AppleWorks itself directly supports *all* Apple printers as well as Epson printers in the MX, RX, and FX series and certain models of Qume printers. Any other brand of printer will have to be specially installed as a "custom" printer, which we will discuss later.

HARD DISK DRIVE

The purpose of using a hard disk drive, such as Apple's 5 megabyte (that's 5 million bytes) or 10 megabyte *Profile*, is to avoid using diskettes for program and document storage and, instead, store everything on the hard

drive. Adding a hard disk drive to your computer system is definitely optional and can be done at any time.

The Apple //c System

If you have an Apple //c, you have fewer options. Your //c already contains one disk drive, 128K bytes of RAM memory, built-in 80-column display, and two serial interface ports. The only choices you need to make are whether to add a second disk drive (recommended), and which monitor and printer to buy.

MONITORS

In addition to the information on monitors in the above discussion on Apple][+ and //e components, there is one other fact you should know if you intend to use an RGB color monitor with your Apple //c. The //c will *not* operate an RGB color monitor directly. It requires an RGB adapter currently available from a company called Video 7 (see Appendix A). There have been reports that Apple will be marketing their own RGB adapter soon.

PRINTERS

Again, look at the discussion on printers in the section above. While the Apple //c has its own serial printer ports built in, you *can* use a parallel printer with your //c, if you desire. At least one company, Discwasher (see Appendix A), sells a serial-to-parallel converter box that plugs into the //c's serial port and allows the use of a parallel printer.

III. THE APPLEWORKS PROGRAM

Before your Apple computer can perform the various functions of AppleWorks, it must first receive instructions. The AppleWorks disk (both sides) contains these computer instructions. Every time you want to use the AppleWorks program, you have to load in these instructions, because every time you turn off your Apple, it forgets them.

Making Copies of AppleWorks

Before you can load the AppleWorks program into your Apple, you must copy the two sides of the AppleWorks disk onto two separate

disks—side 1 to one disk, and side 2 to the other. There are several reasons for making these copies, but the biggest reason is that if you don't, you won't be able to use AppleWorks at all. Making the copies is a straightforward procedure, requiring the two-sided AppleWorks disk, two blank disks, and either the ProDOS User's Disk or the System Utilities Disk, depending on which model Apple computer you have.

Before you actually start the duplication process, the first thing to do is to label the two blank disks with a soft-tipped marker. (*Do not use a pencil or a ball-point pen or you may damage the disk.*) Mark one of the disks "AppleWorks Startup" and the other, "AppleWorks Program." Now, depending on the computer system you have, use one of the four procedures described below for copying your AppleWorks disks.

APPLE][+ OR //e WITH TWO DISK DRIVES

1. Place the ProDOS User's Disk in disk drive 1 and turn on your computer. (If your computer is already on, hold down the CONTROL and OPEN-APPLE keys and press the RESET key.)
2. From the main Options menu, select **ProDOS Filer (Utilities)** by pressing the "F" key.
3. From the Filer Menu, select **Volume Commands** by pressing the "V" key.
4. From the Volume Commands Menu, select **Copy a Volume** by pressing the "C" key.
5. Remove the ProDOS User's Disk from drive 1 and put your original AppleWorks Startup disk into drive 1. Place the blank disk that you have labeled "AppleWorks Startup" in drive 2.
6. The cursor, the little blinking box on the screen, should be sitting on the number "(6)." (If it's anywhere else on the screen, press the ESC key once.) Press the RETURN key five times and your screen should look like Figure 1-1. (If it doesn't, check to be sure that you have selected the **Copy a Volume** option and that the right disks are in their respective drives. Press the ESC key once, and repeat this step.)
7. Press RETURN once more and the copying process will begin. If your blank disk has been previously formatted (we'll discuss formatting later on in this chapter), the program will ask you if it is

FIGURE 1—1

```
****************************************
*                                      *
*              COPY A VOLUME           *
*                                      *
****************************************

--COPY--
  THE VOLUME IN SLOT: (6)
                DRIVE: (1)

   TO VOLUME IN SLOT: (6)
                DRIVE: (2)

   NEW VOLUME NAME: (/APPLEWORKS      )



--PRESS <RET> TO ACCEPT:<ESC> TO EXIT--


---------------------------------------
```

all right to "Destroy" the contents of the disk. Press the "Y" key and the copying process will begin. Your blank disk will first be formatted, and then, a section at a time, the information on the disk in drive 1 will be copied over to the blank disk.

8. When the process is complete, you will see the message "COPY COMPLETE." Remove the newly copied "Startup" disk from drive 2 and place the blank disk that you have labeled "AppleWorks Program" in drive 2. Remove the original Appleworks Startup disk from drive 1 and insert your original AppleWorks Program disk into drive 1.
9. Repeat steps 6 and 7 above. You now have working copies of AppleWorks Startup and Program disks.

APPLE][+ OR //e WITH ONE DISK DRIVE

1. Place the ProDOS User's Disk in disk drive 1 and turn on your computer. (If your computer is already on, hold down the CONTROL and OPEN-APPLE keys and press the RESET key.)

2. From the main Options menu, select **ProDOS Filer (Utilities)** by pressing the "F" key.

3. From the Filer Menu, select **Volume Commands** by pressing the "V" key.

4. From the Volume Commands Menu, select **Copy a Volume** by pressing the "C" key.

5. Remove the ProDOS User's Disk from your disk drive and insert your original AppleWorks Startup disk.

6. The cursor, the little blinking box on the screen, should be sitting on the number "(6)." (If it's anywhere else on the screen, press the ESC key once.) Press the RETURN key three times, press the number "1" key, and press the RETURN key once more. Your screen should now look like Figure 1-2. (If it doesn't, check to be sure that you have selected the **Copy a Volume** option and that the AppleWorks Startup disk is in your disk drive. Press the ESC key once, and repeat this step.)

7. Press the RETURN key once more and the copying process will begin. You will be alternately instructed to insert the "Destination disk" and the "Source disk," pressing the RETURN key each time. The Source disk is the *original* AppleWorks disk; the Destination disk is the blank disk that you have labeled either "AppleWorks Startup" or "AppleWorks Program." If your blank disk has been previously formatted (we'll discuss formatting later in this chapter), the program will ask you if it is all right to "Destroy" the contents of the disk. Press the "Y" key and the copying process will begin.

8. Continue swapping the two disks until you see the message "COPY COMPLETE." Remove your copy of the AppleWorks Startup disk from the drive and insert the original Appleworks Program disk into the disk drive. Have the blank disk, which you labeled "AppleWorks Program," ready.

FIGURE 1—2

```
****************************************
*                                      *
*            COPY A VOLUME             *
*                                      *
****************************************

--COPY--
  THE VOLUME IN SLOT: (6)
                DRIVE: (1)

   TO VOLUME IN SLOT: (6)
                DRIVE: (1)

   NEW VOLUME NAME: (/APPLEWORKS      )



--PRESS <RET> TO ACCEPT:<ESC> TO EXIT--

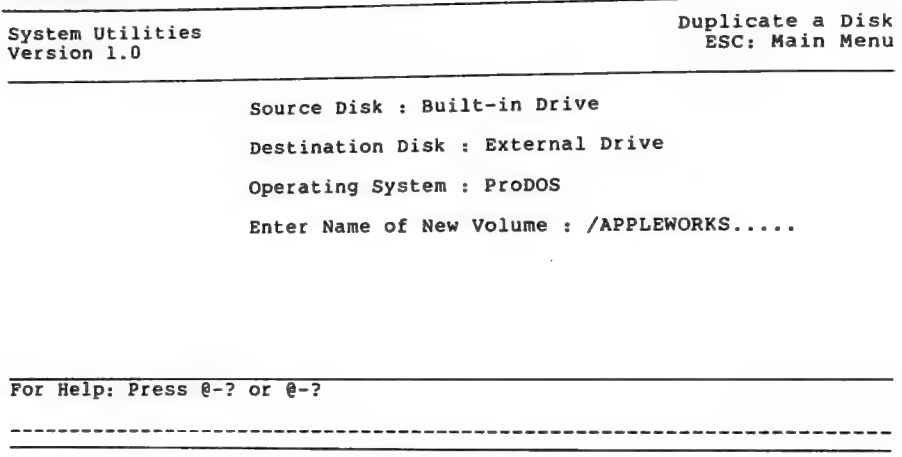
---------------------------------------
```

9. Repeat steps 6 and 7. You now have working copies of AppleWorks Startup and Program disks.

APPLE //c WITH TWO DISK DRIVES

1. Place the System Utilities disk in the built-in drive of your //c and turn on the computer. (If your computer is already on, hold down the CONTROL and OPEN-APPLE keys and press the RESET key.)
2. From the Main Menu, select **Duplicate a Disk** by pressing the number "5" key and then the RETURN key.
3. Remove the System Utilities disk and insert the original AppleWorks Startup disk in the built-in drive. Place the blank disk, which you have labeled "AppleWorks Startup," into the external drive.
4. The **Duplicate a Disk** option requires that you specify the location (which disk drive, built-in or external) you are planning to use for your Source disk and your Destination disk. Your Source disk is the

FIGURE 1—3


System Utilities
Version 1.0
Duplicate a Disk
ESC: Main Menu
Source Disk : Built-in Drive
Destination Disk : External Drive
Operating System : ProDOS
Enter Name of New Volume : /APPLEWORKS.....
For Help: Press @-? or @-?

original AppleWorks disk; your Destination disk is either of the two blank disks that you have labeled "AppleWorks Startup" and "AppleWorks Program." In response to the question, "Where is your source disk?" press the number "1" key and then the RETURN key. In response to the question, "Where is your destination disk?" press the number "2" key and then the RETURN key.

5. Press the RETURN key again and your screen should look like Figure 1-3. (*Note*: The version number in line 2 may be different.)
6. Press the RETURN key once more and the disk duplication process will begin. If your blank disk has been previously formatted (we'll discuss formatting later in this chapter), the program will ask you if it is all right to "Destroy" the contents of the disk. Press the RETURN key and the copying process will begin.
7. After about half a minute, you will see the message, "FORMATTING . . . DONE!" and in another minute or so you should see the message, "DUPLICATING . . . DONE!" Remove the original AppleWorks Startup disk from the built-in drive and insert the original AppleWorks Program disk. Remove the newly created copy of the AppleWorks Startup disk from the external drive and put in the blank disk that you labeled "AppleWorks Program."
8. Press the RETURN key and repeat steps 4, 5, and 6. When the copying process has been completed a second time, you will have made copies of AppleWorks Startup and Program disks.

APPLE //c WITH ONE DISK DRIVE

1. Place the System Utilities disk in the built-in drive of your //c and turn on the computer. (If your computer is already on, hold down the CONTROL and OPEN-APPLE keys and press the RESET key.)
2. From the Main Menu, select **Duplicate a Disk** by pressing the number "5" key and then the RETURN key.
3. Remove the System Utilities disk and insert the original AppleWorks Startup disk in the built-in drive.
4. The **Duplicate a Disk** option requires that you specify the location you are planning to use for your Source disk and your Destination disk. Your Source disk is the original AppleWorks disk; your Destination disk is either of the two blank disks that you have labeled "AppleWorks Startup" and "AppleWorks Program." In response to the question, "Where is your source disk?" press the number "1" key and then the RETURN key. In response to the question, "Where is your destination disk?" again press the number "1" key and then the RETURN key.
5. Press the RETURN key again and your screen should look like Figure 1-3. (*Note:* The version number in line 2 may be different.)
6. Press the RETURN key once more and the disk duplication process will begin. You will be instructed to first remove the Source disk, insert the Destination disk, and press RETURN. Press RETURN

FIGURE 1—4

```
System Utilities                                    Duplicate a Disk
Version 1.0                                           ESC: Main Menu

                    Source Disk : Built-in Drive

                    Destination Disk : Built-in Drive

                    Operating System : ProDOS

                    Enter Name of New Volume : /APPLEWORKS.....




For Help: Press @-? or @-?
```

again and the Destination disk will be formatted (we'll discuss formatting later in this chapter). If your blank disk has been previously formatted, the program will ask you if it is all right to "Destroy" the contents of the disk. Press the RETURN key and the formatting process will begin. You will see the message, "FORMATTING . . . DONE!" and will then be instructed to swap the Source and Destination disks alternately (pressing RETURN each time you swap) until the copying process is complete and you see the message, "DUPLICATING . . . DONE!".

7. Remove the newly created copy of the AppleWorks Startup disk from the built-in drive. Insert the original AppleWorks Program disk into the built-in drive. Press the RETURN key and repeat steps 4, 5, and 6—this time using the blank disk you labeled "AppleWorks Program."
8. When the Program disk has been copied, you will have your working copies of both AppleWorks disks.

Using AppleWorks for the First Time

Now that you have made copies of the AppleWorks Startup and Program disks, you can begin to make the program work for you.

First, as you have no doubt discovered if you have read any computer books or manuals, computer people speak a language all their own. Many of these "computerese" terms are so esoteric that you could be a computer user for 20 years and never hear them. Other terms can be useful to know.

Throughout this book you will see the term default or default value. Each section of AppleWorks has many different features and options. Most of these features and options can take different values. For example, in the Word Processor section there is an option to print out your document either single, double, or triple spaced. The default value, the choice that AppleWorks makes for all new word processing documents, is single spaced. So, anytime you see the term *default*, think of it as a choice that AppleWorks has made for you—one you can change if you want.

Another term you'll come across is boot. Simply put, to boot a system or program means to start it up.

STARTING UP APPLEWORKS

To boot AppleWorks, place your copy of the AppleWorks Startup disk in disk drive 1 (the internal drive, if you have an Apple //c). Turn on

your Apple computer, or, if it is already turned on, hold down the CONTROL and OPEN-APPLE keys and press the RESET key. (Apple][+ users press CONTROL and RESET keys.) (*Note:* The above procedure is called a CONTROL-OPEN-APPLE-RESET and is used to restart the computer. You should always use this method to restart, rather than turning your Apple off and on again with the power switch. However, you should *only* restart your computer when you begin a new program and *never* do it while you are in the midst of using a program.)

APPLEWORKS' VERSION

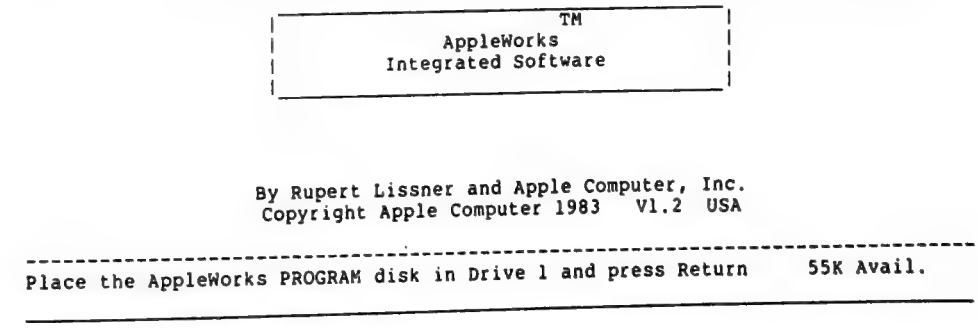
After about 10 seconds, your screen should look like Figure 1-5. There are two interesting pieces of information on this screen. The first is the version number that appears on the line beginning "Copyright...." The version I have used in this book is version 1.2. If you have an earlier release of AppleWorks, you can get version 1.2 from your local Apple dealer at no charge. Take with you two blank disks and proof of your original AppleWorks purchase, and your dealer will copy version 1.2, both Startup and Program, onto your disks.

AVAILABLE MEMORY

The second useful piece of information from this first AppleWorks screen is the amount of memory AppleWorks says it has available for your documents. This value is found in the lower right corner of the screen, and should be "55K Avail." Remember, this is the amount of memory *inside your Apple* that is available for word processing documents, spreadsheets, etc. It has nothing to do with storing those files on a diskette. (*Note:* If you have an Apple][+ or //e with only 64K of RAM, the available memory for AppleWorks documents will be 10K.)

To understand what this value means, suppose you were typing a

FIGURE 1—5


TM
AppleWorks
Integrated Software
By Rupert Lissner and Apple Computer, Inc.
Copyright Apple Computer 1983 V1.2 USA
Place the AppleWorks PROGRAM disk in Drive 1 and press Return
55K Avail.

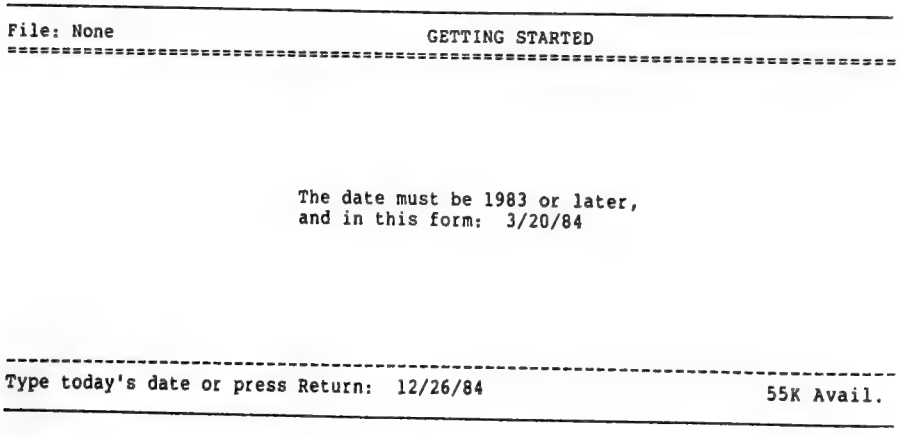
long word processing document. With 55K of memory, AppleWorks would have enough room for about 17 single-spaced typewritten pages of text—figuring 60 characters (letters, numbers, spaces, etc.) per line and 54 lines per page. And, yes, AppleWorks *will* warn you when you're getting close to running out of memory.

ENTERING THE DATE

Let's continue with the boot process. Remove the AppleWorks Startup disk and insert the AppleWorks Program disk into drive 1. Now press the RETURN key and your screen should look like Figure 1-6. AppleWorks is asking you to type in today's date in the format: mm/dd/yy. You can accept whatever date AppleWorks has chosen as a default value by pressing the RETURN key, but I suggest that you actually type in the current date. The reason is that AppleWorks uses this date to "date stamp" every file that you save onto a disk. When you look at a list of files on a disk, you'll also see the date each was last saved.

Notice that the cursor is shaped like a small box that blinks about once a second. This is one of the two types of cursors AppleWorks uses and is called the *overstrike cursor.* As you type in the date, notice that each character you type replaces a character on the screen. If your date has fewer characters in it than does the default date, press the space bar once or twice so that only your date shows. Now press the RETURN key. This completes the boot process, and your screen should display what AppleWorks calls the Main Menu.

FIGURE 1—6


File: None
GETTING STARTED
The date must be 1983 or later,
and in this form: 3/20/84
Type today's date or press Return: 12/26/84
55K Avail.

IV. CONFIGURING APPLEWORKS FOR YOUR SYSTEM

The Main Menu provides access to all the parts of the AppleWorks program. In later chapters of this book, we will discuss all of the Main Menu options, but, right now, we are concerned with configuring, or customizing, AppleWorks for your particular Apple computer system.

Figure 1-7 shows the Main Menu, which should now be on your screen. The purpose of a menu is to present you with a selection of choices. To make a selection, you can either type the number of your choice or use the up- and down-arrow keys to "highlight" your choice. Then you press the RETURN key and the selection you have chosen is made. The selection I would like you to make is the fifth one listed: **Other Activities**. So, press **5**, then press the RETURN key, and your screen should look like Figure 1-8. (*Note:* If you press the wrong number, you can delete it by pressing the DELETE key.)

Choosing the Default Drive for Your Data Disk

Before we go any further, look at the top line on your monitor (Figure 1-8). On the left is the Data-Disk Drive Indicator. Right now, it shows that it expects your data disk (the disk you'll be saving your AppleWorks documents on) to be in drive 2. If your computer system has *two* disk drives, *skip* the next paragraph.

FIGURE 1—7

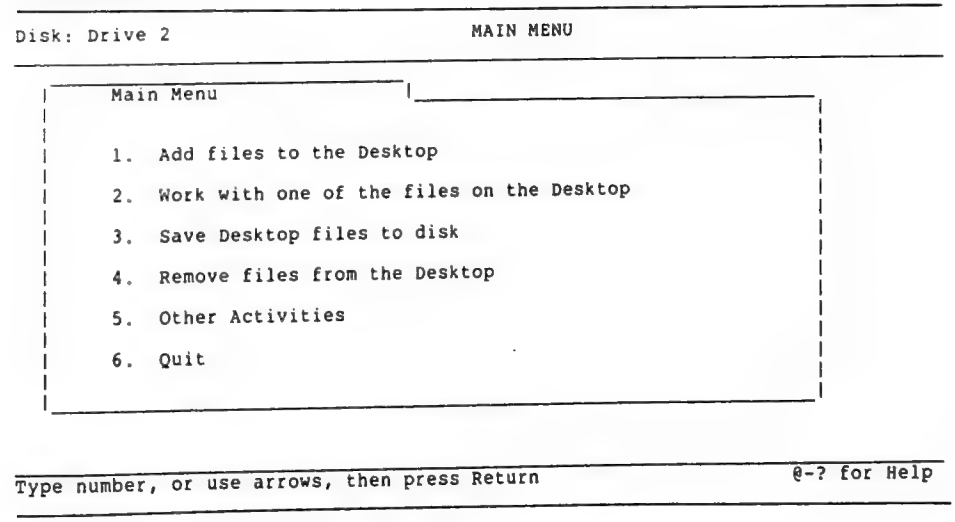

Disk: Drive 2
MAIN MENU
Main Menu
1. Add files to the Desktop
2. Work with one of the files on the Desktop
3. Save Desktop files to disk
4. Remove files from the Desktop
5. Other Activities
6. Quit
Type number, or use arrows, then press Return
@-? for Help

FIGURE 1—8

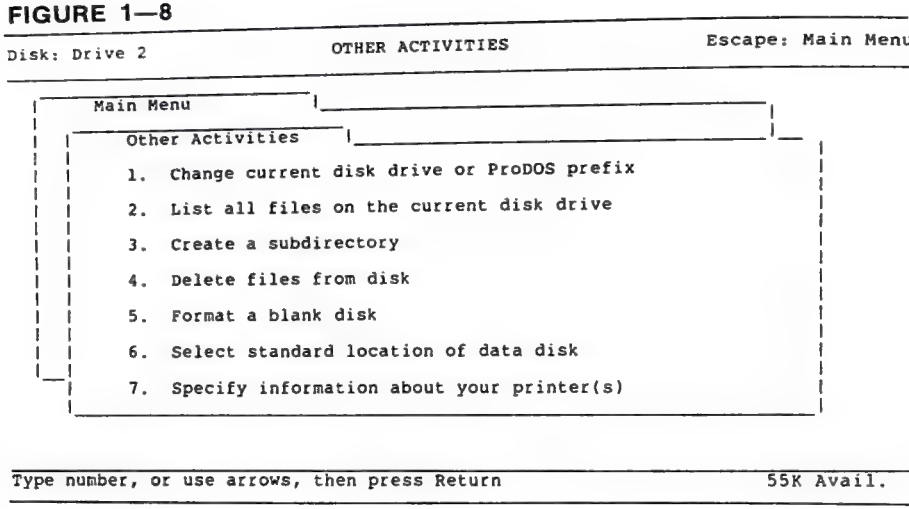
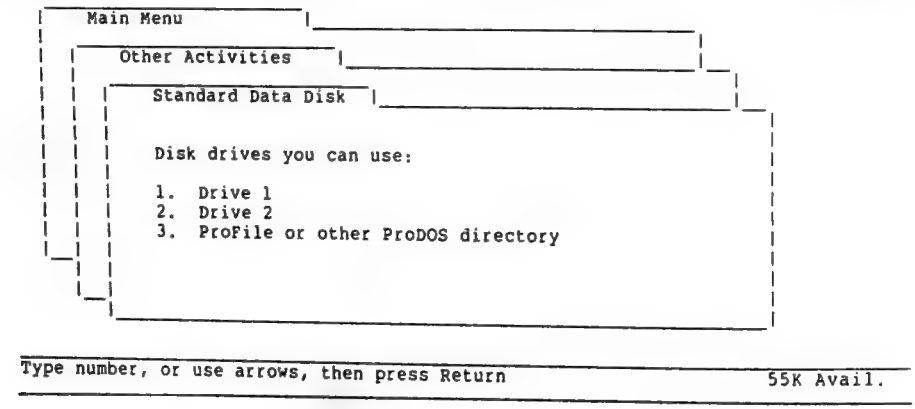

Disk: Drive 2
OTHER ACTIVITIES
Escape: Main Menu
Main Menu
Other Activities
1. Change current disk drive or ProDOS prefix
2. List all files on the current disk drive
3. Create a subdirectory
4. Delete files from disk
5. Format a blank disk
6. Select standard location of data disk
7. Specify information about your printer(s)
Type number, or use arrows, then press Return
55K Avail.

FIGURE 1—9



If your computer system has only one disk drive, you have to tell AppleWorks to look for your data disk in drive 1. To do this, select option 6 (**Select standard location of data disk**) from the Other Activities Menu. Figure 1-9 shows what you should be seeing. On your screen, the choice **Drive 1** is highlighted. Because this is the disk drive we want AppleWorks to use for saving and loading documents, just press the RETURN key. You should now be back at the Other Activities Menu, and the Data-Disk Drive Indicator should say "Disk: Drive 1."

The Standard AppleWorks Screen

The top line of a typical menu screen contains other information besides the current data disk drive number. At the center of the top line is the name of the menu or activity you are currently using. At the right of the top line is a special indicator that tells you what will happen if you press the ESC key on your Apple's keyboard. On your screen it says that pressing ESC will return you to the Main Menu. Pressing the ESC key is the way to exit any menu except the Main Menu. Try it out. Press the ESC key and see that you have returned to the Main Menu. Now select option 5 and go to the Other Activities Menu again.

Most of the screen is used to display the Other Activities Menu. Notice that the menu appears outlined with the shape of a file folder. This is part of the Desktop metaphor used by AppleWorks throughout the entire program. You can see the outline of the Main Menu file folder behind the Other Activities file folder. The implication is that the Other Activities folder is contained in the Main Menu folder, and this is reinforced by the fact that when you're in Other Activities, pressing the ESC key takes you to the Main Menu.

At the bottom of the screen is an instruction line, "Type number, or use arrows, then press Return," and at the far right of the bottom line is the Available Memory Indicator, which we talked about earlier. This indicator tells you how much internal computer memory is currently available for you to use. If you have an Apple //c, or an Apple //e with an Extended 80-Column Text Card, the memory indicator will show "55K Avail." If you have an Apple][+ or an Apple //e with a standard 80-Column Text Card, your memory indicator will say "10K Avail." As you type in word processing, data base, or spreadsheet documents, the Available Memory Indicator will gradually decrease. When it reaches 0, you won't be able to type in any more words or data. We'll discuss what to do when this happens later in the book.

Formatting a Data Disk

The next thing we want to do is to format your AppleWorks data disk. The formatting process prepares the data disk to store your AppleWorks documents.

Blank disks can be used on any brand or type of computer that accepts 5¼-inch disks. But every computer uses its own method to "record" and "playback" data on its disks. The formatting process allows your particular brand of computer to set up its own unique

record and playback scheme on the disk. Formatting a disk also erases any and all information that may have been previously recorded on it.

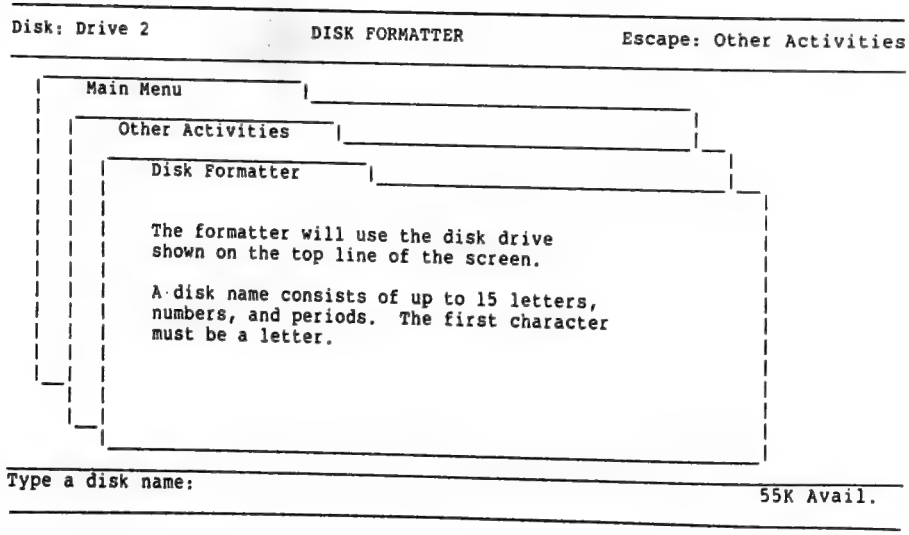
Some computers—and your computer is one of them—have more than one method of formatting disks. The method chosen depends on the operating system being used at the time the disk is formatted. Since AppleWorks runs under the ProDOS operating system, your data disks will be formatted using the ProDOS scheme. Other operating systems available to your Apple computer include DOS 3.3 and Pascal.

To format your data disk, select option 5, **Format a blank disk**, from the Other Activities Menu. A new "file folder" should appear on top of the Other Activities folder, as in Figure 1-10. Take a blank disk and label it "AppleWorks Data." If your computer system has *two* disk drives, insert this labeled data disk into drive 2 and *skip* the next paragraph.

If your computer system has only *one* disk drive, remove the AppleWorks Program disk from the disk drive and insert the labeled data disk into the drive.

The instruction line at the bottom of the screen says, "Type a disk name:". Under ProDOS, the operating system used by AppleWorks, all disks are given names when they are formatted. You can give your data disk almost any name, up to 15 letters or numbers long. You can even use periods, along with your letters and numbers, and the letters can be either upper or lower case. (AppleWorks converts all letters to upper case.) There are three restrictions: You must type a letter as the first character of the disk name, you cannot use spaces, and you must *not*

FIGURE 1—10


Disk: Drive 2
DISK FORMATTER
Escape: Other Activities
Main Menu
Other Activities
Disk Formatter
The formatter will use the disk drive shown on the top line of the screen.
A disk name consists of up to 15 letters, numbers, and periods. The first character must be a letter.
Type a disk name:
55K Avail.

name the data disk "AppleWorks." In fact, to make some of the later exercises less confusing, let's name the data disk "DATA." Type the four letters **D,A,T,A** and press RETURN. The instruction line should now read, "Press Space Bar to continue." Press the space bar.

(*Note:* If your data disk has been previously formatted, you will see a warning message telling you that your disk is not blank and asking you if you *really* want to format it. Type **yes** and press RETURN.)

Your data disk should now be formatting. After about 30 seconds you should see the message in the center of the screen, "Successfully formatted." If your computer system has two disk drives, skip the next step.

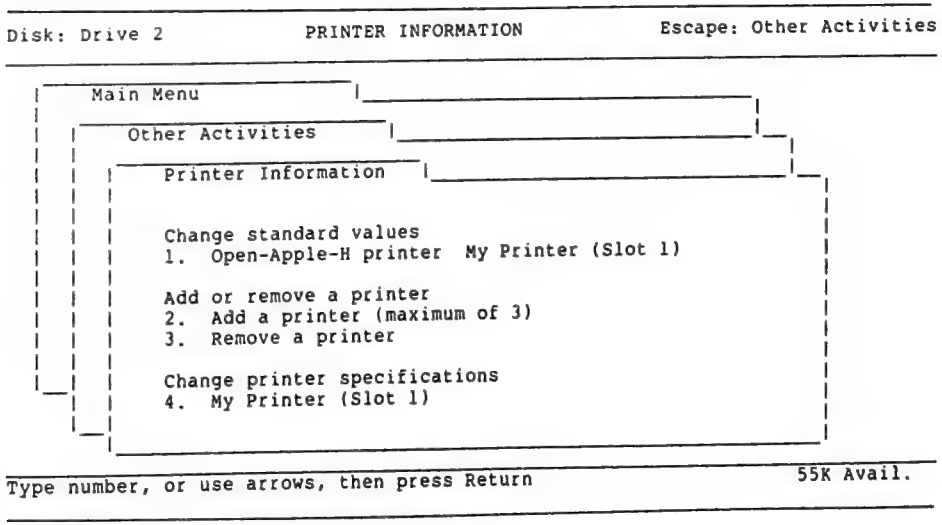
If your computer system has one disk drive, remove the formatted data disk from the drive and insert the AppleWorks Program disk.

Press the space bar once, then press the ESC key to return to the Other Activities Menu.

Configuring AppleWorks for Your Printer

The last part of our configuration process tells AppleWorks what kind of printer you are using. To do this, select option 7, **Specify information about your printer(s)**. Your screen should now look like Figure 1-11.

FIGURE 1—11



THE PRINTER INFORMATION MENU

The first thing we'll do is remove any printers that may be present. *Note:* If your screen shows only options 1, 2, and 3, you can skip the next paragraph.

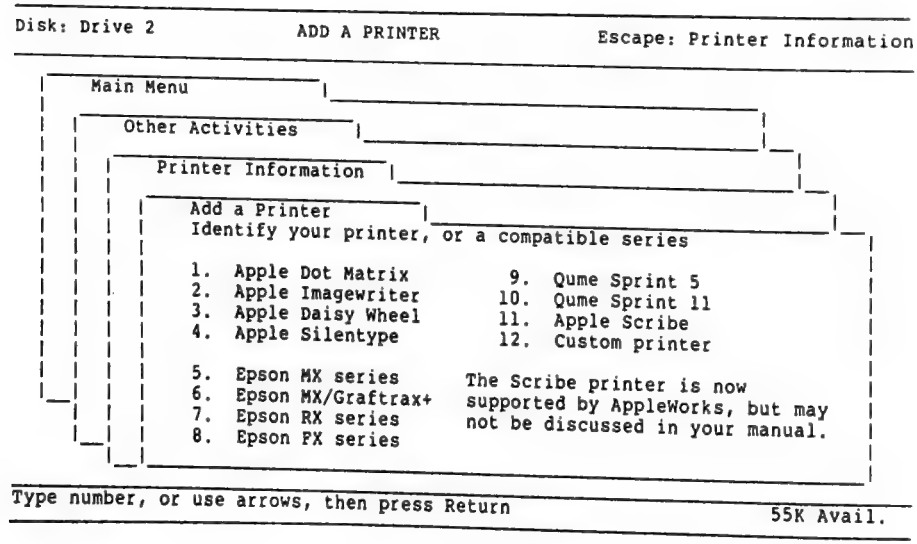
Select option 3, **Remove a printer**. In the Remove a Printer folder, you will see that printer 1 is highlighted. Press the RETURN key and that printer will be removed. You should now be back at the Printer Information Menu. Repeat this step until your screen shows only options 1, 2, and 3.

We will now tell AppleWorks which printer you will be using, and where it is connected to your Apple computer. Select option 2, **Add a Printer**, and your screen should look like Figure 1-12. (*Note:* If your version of AppleWorks is earlier than version 1.2, you won't see an entry for the Apple Scribe printer, and the Custom printer selection will be number 11.)

ADDING A PRINTER

If you are using any Apple printer (Imagewriter, Daisy Wheel, etc.) or any Epson printer (MX, RX, or FX series) or a Qume Sprint 5 or Sprint 11 printer, you will find your printer listed in the Add a Printer folder. Type the number that corresponds to your printer and press RETURN. (As with all typed responses, if you type the wrong number, press the DELETE key to erase your mistake.)

FIGURE 1—12


Disk: Drive 2
ADD A PRINTER
Escape: Printer Information
Main Menu
Other Activities
Printer Information
Add a Printer
Identify your printer, or a compatible series
1. Apple Dot Matrix
2. Apple Imagewriter
3. Apple Daisy Wheel
4. Apple Silentype
5. Epson MX series
6. Epson MX/Graftrax+
7. Epson RX series
8. Epson FX series
9. Qume Sprint 5
10. Qume Sprint 11
11. Apple Scribe
12. Custom printer
The Scribe printer is now supported by AppleWorks, but may not be discussed in your manual.
Type number, or use arrows, then press Return
55K Avail.

But what if your printer isn't listed? In that case, you must select **Custom printer**, choice 12.

After you make your choice, you will be asked to "Type a name:" for your printer. The name can be anything you want. Again, for convenience, suppose we call it, "My Printer." Type **My Printer**, and press RETURN.

You now have to tell AppleWorks *where* your printer is connected to your Apple. If you have an Apple][+ or //e, your choices will be those in Figure 1-13a. If you have an Apple //c, your choices are shown in Figure 1-13b. In most computer systems, your printer will be in **Slot 1** if you have an Apple][+ or //e, or **Port 1** if you have an Apple //c. Select the location of your printer (probably 1) and press RETURN.

PRINTER OPTIONS

Depending on whether you chose Custom printer, and which model computer you are using, you will have either 4, 5, or 6 customizing options displayed (see Figure 1-14). If you have an Apple][+ or //e, AppleWorks will show you the option **Interface cards**. If you have selected Custom printer as your printer type, AppleWorks will show the option **Printer codes**.

Let's discuss options 1 through 4 first, because they are always present. Option 1, **Needs line feed after each Return**, asks you whether your printer requires AppleWorks to send a *line feed* command after every *carriage return* command. Most printers generate their own line feed commands every time they receive a carriage return command from the computer. Some printers require both carriage return and line feed commands to be sent by the computer. If you look in your printer's manual, it should tell you whether your printer requires line feeds. In order to change any of the first 3 options from "Yes" to "No" or vice versa, type the number of the option, press RETURN, and type the letter "Y" (in upper or lower case, *without* pressing the RETURN key).

Option 2, **Accepts top-of-page commands**, should *always* be "No," regardless of what type of printer you have. The reason for this choice is a bit too involved to go into here, so trust me and select "No" to option 2.

Option 3, **Stop at end of each page**, controls whether AppleWorks will pause after each page in a multipage document and wait for you to press a key on the keyboard before continuing. If you are using single sheets of paper, the response to option 3 should be "Yes." If you are using continuous-feed paper, the answer to option 3 should be "No."

Option 4, **Platen width**, requires a numerical response. Most printers have a platen width of 8 inches. Yes, they'll accept 8.5-inch-wide paper, but the print head only travels 8 inches from one end to the

FIGURE 1—13a

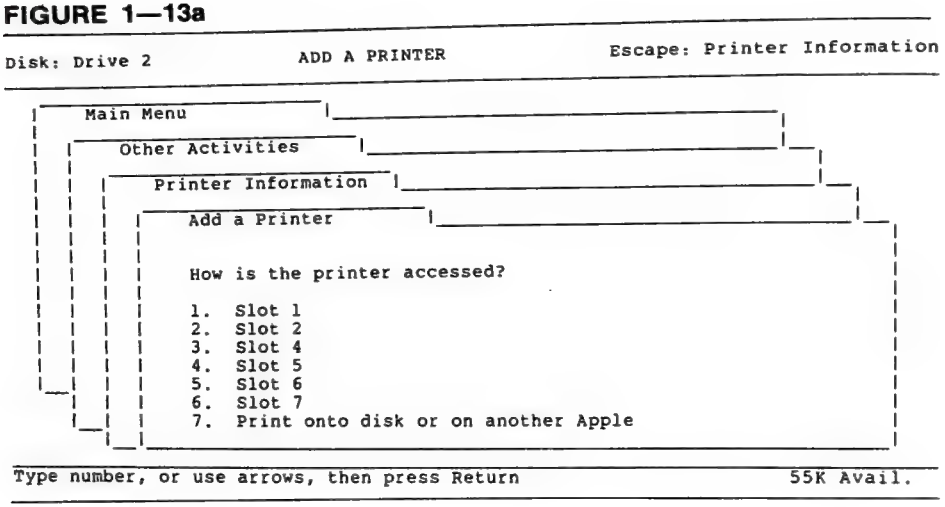
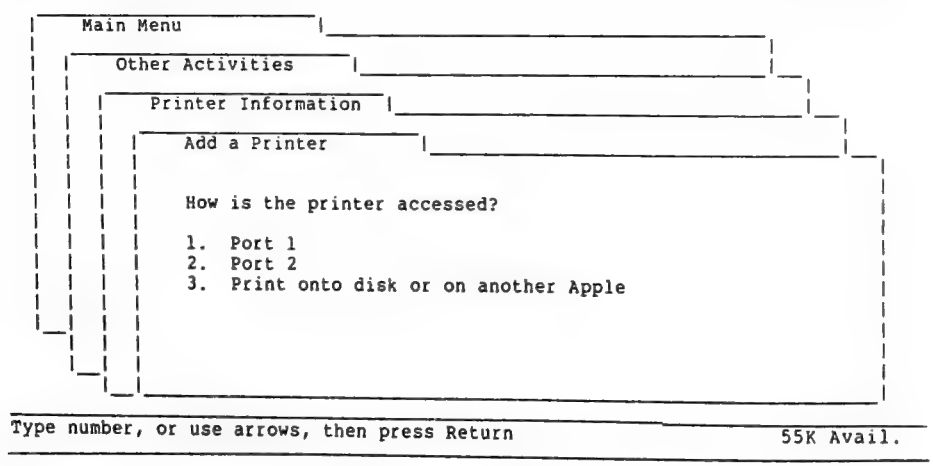
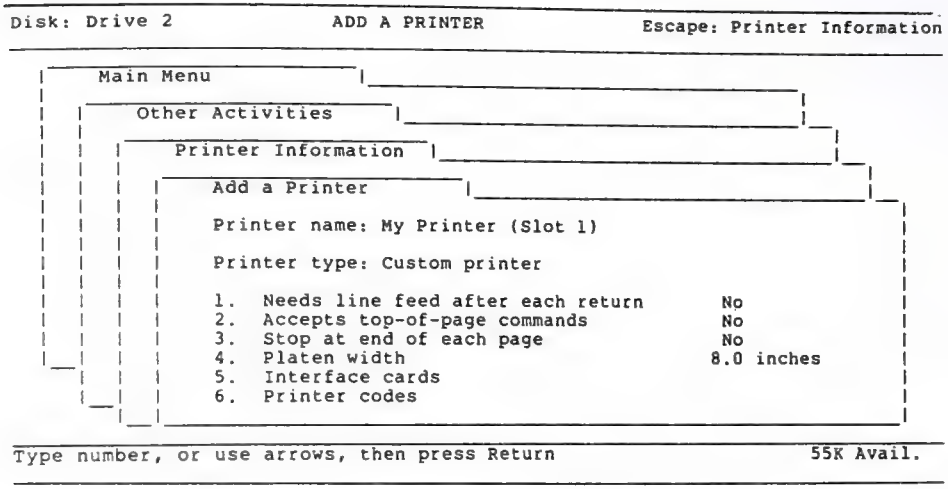


FIGURE 1—13b



other. Similarly, so-called wide carriage printers may accept paper up to 15 inches wide, but the actual platen width is only 13.2 inches. These two platen widths, 8.0 and 13.2 inches, cover virtually all currently available printers. If you need to change the platen width, type the option number, **4**, press RETURN, type the new platen width, and press RETURN.

FIGURE 1—14


Disk: Drive 2
ADD A PRINTER
Escape: Printer Information
Main Menu
Other Activities
Printer Information
Add a Printer
Printer name: My Printer (Slot 1)
Printer type: Custom printer
1. Needs line feed after each return No
2. Accepts top-of-page commands No
3. Stop at end of each page No
4. Platen width 8.0 inches
5. Interface cards
6. Printer codes
Type number, or use arrows, then press Return
55K Avail.

INTERFACE CARD INITIALIZATION CODES

The **Interface cards** option is a new feature of version 1.2 of AppleWorks and only appears if you are running AppleWorks on an Apple][+ or //e computer. If you have an Apple][+ or //e, your printer is plugged into an interface card that is, in turn, plugged into one of the seven slots in your][+ or //e's motherboard (main circuit board)—probably slot 1. If this interface card is either an Apple Parallel Interface Card or an Apple Super Serial Card, you can leave the **Interface cards** option exactly as it is. If, however, you are using a non-Apple interface card (e.g., Grappler, Tymac, etc.), you will have to change the interface card initialization code so that it agrees with the code your card is expecting.

Look at Table 1-1. It shows the initialization code for most of the popular, non-Apple, parallel interface cards (as many as I could find).

TABLE 1—1

Interface Card	Initialization Code
Grappler and compatibles	CONTROL-I N
PKASO	CONTROL-I 0N
Tymac or Microtek	CONTROL-I 255N
Practical Peripherals	CONTROL-I N

If you have a non-Apple interface card that is not listed in Table 1-1, you can probably find the required initialization code in the manual

that came with the card. In some cases, you may have to contact the card manufacturer to get this information.

To type in your specific code, select option 5, **Interface cards**, from the Add a Printer Menu, and your screen should look like Figure 1-15. Press the space bar, and you will see Figure 1-16 on your screen. You want to replace the list of characters already in the Interface cards folder with the list of characters for your particular interface card. So

FIGURE 1—15

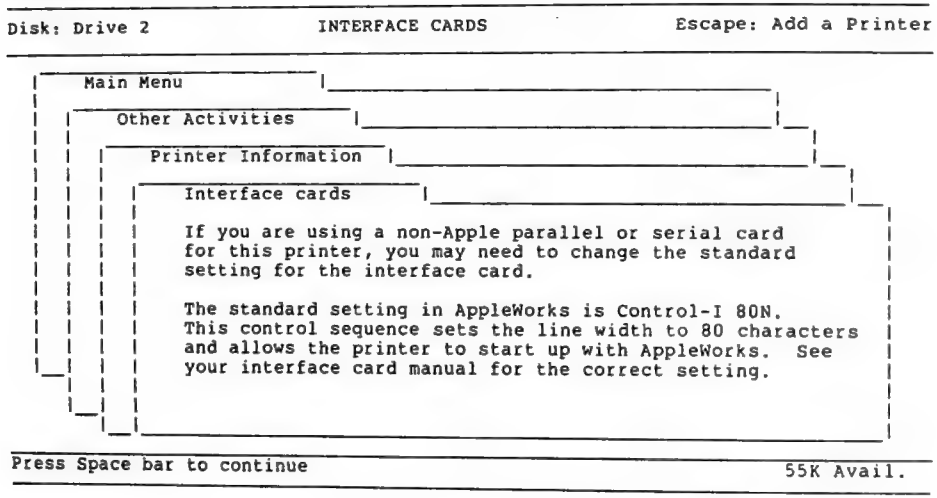
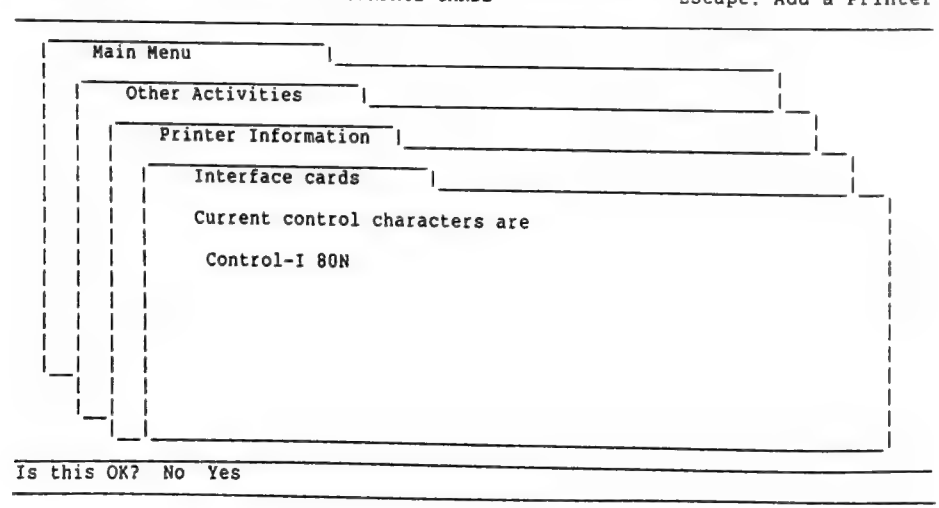

Disk: Drive 2
INTERFACE CARDS
Escape: Add a Printer
Main Menu
Other Activities
Printer Information
Interface cards
If you are using a non-Apple parallel or serial card for this printer, you may need to change the standard setting for the interface card.
The standard setting in AppleWorks is Control-I 80N. This control sequence sets the line width to 80 characters and allows the printer to start up with AppleWorks. See your interface card manual for the correct setting.
Press Space bar to continue
55K Avail.

FIGURE 1—16



the first thing to do is to get rid of the string of characters already there. In response to the question at the bottom of the screen, "Is this OK?" type the letter "N" (*don't* press RETURN).

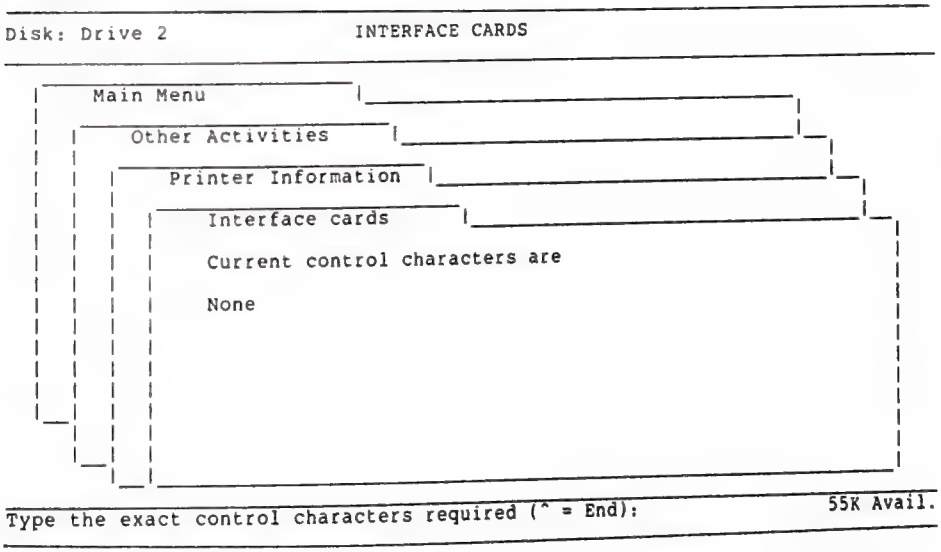
Now your screen looks like Figure 1-17. Notice that all of the initialization codes in Table 1-1 begin with the character CONTROL-I. To type this character, hold the CONTROL key down while you type the letter "I." Now type the rest of the characters that make up your interface card's initialization code without pressing the CONTROL key. Note that while Table 1-1 shows a space between the CONTROL-I and the next character, this is only for the purpose of clarity. In other words, don't type any spaces. Also notice that the last character in the code is an upper-case (capital) "N."

When you have finished typing the initialization code, *do not* press the RETURN key. Instead, type a caret or circumflex character, "^" (Shift-6). This will bring you back to the Add a Printer Menu. If you make a mistake while typing in the initialization code, you won't be able to erase the wrong character with the DELETE key. You'll have to type the "^" character to get out of the Interface Cards folder and repeat the entire sequence beginning at the top of the previous paragraph.

CUSTOM PRINTER CODES

If you have selected **Custom printer** as your printer type because your printer wasn't among those listed, your Add a Printer Menu also shows the option for **Printer codes** (it may be numbered either 5 or 6). The

FIGURE 1—17



reason for this option is that AppleWorks allows you to make use of many of the special features that most modern printers have, such as underlining, boldfacing, various print sizes and styles (pica, elite, etc.), superscripting and subscripting, and so forth. If your printer is one of those listed (e.g., Apple, Epson, Qume), AppleWorks automatically knows what commands have to be sent to your printer in order to produce a particular feature (such as underlining).

If you select **Custom printer**, AppleWorks doesn't know which features, if any, your printer supports. Nor does it know what commands are needed to achieve a particular feature on your printer. The **Printer codes** option lets you tell AppleWorks which features your printer supports and how to make them work.

Because entering special codes for your printer is a rather involved process, and because the codes are different for different printers, I have placed this part of the configuration process in Appendix B. If you have a custom printer, now is the time to go to Appendix B and complete the **Printer codes** section of the printer configuration.

RETURNING TO THE MAIN MENU

Finally, press the ESC key to go to the Printer Information folder, press ESC again to go to the Other Activities folder, and press ESC once more to return to the Main Menu. Your copy of the AppleWorks program has been configured for your computer system and is now ready to be used.

Common Features

As you might imagine, each of the three sections of AppleWorks has its own set of commands and features. Some commands, however, behave the same way in all three applications.

THE CURSOR MOVEMENT KEYS

The four arrow keys are used to move the cursor around the screen. The direction of the arrow on the key indicates the direction of movement of the cursor.

SCREEN PRINT-OUT

AppleWorks allows you to print out on your printer whatever is on your screen at any moment. To do this, first make sure you have paper in your printer and that it is plugged in and turned on. Then type **◆-H** (that is, hold down the OPEN-APPLE key while you type the letter "H"). Your printer should print out exactly what you're seeing on your screen.

HELP SCREENS

Because there are so many commands to remember, AppleWorks provides you with Help screens that list and briefly explain all the commands that AppleWorks currently accepts. To see the Help screen for the Main Menu, type ●-? (Figure 1-18). You can use the up- and down-arrow keys to scroll through the list. Pressing ESC will return you to the application or menu screen you were looking at before you typed ●-?.

SAVING YOUR DOCUMENT AS YOU WORK

You can save the current document you are working on at any time by typing ●-S. AppleWorks will put a copy of your document on your data disk. If the document has been saved previously, AppleWorks will throw away the old version and replace it with the current version.

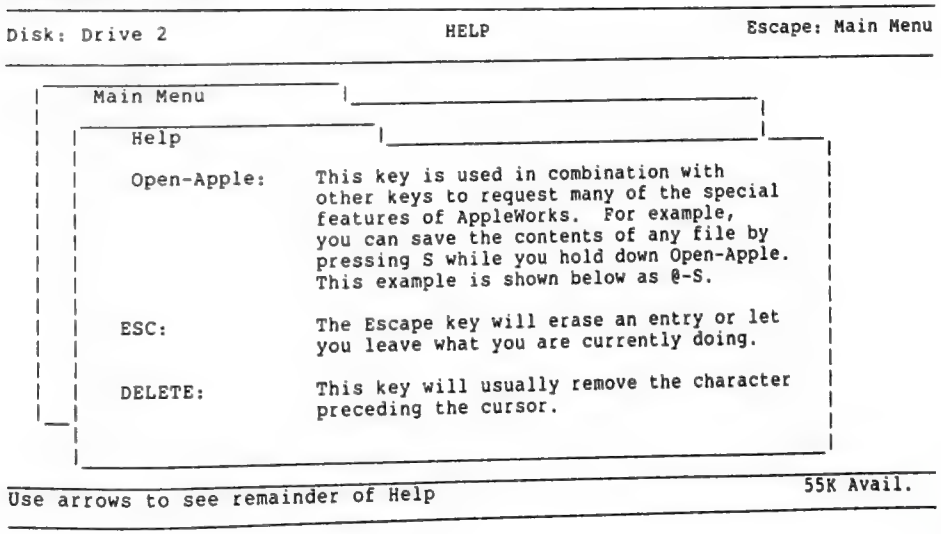
THE DELETE KEY

With the exception of Printer Codes and Interface Card Codes, the DELETE key can always be used to erase what you have just typed.

THE ESC KEY

If you press the ESC key while you are working in any section of AppleWorks (except Printer Codes and Interface Card Codes), you will be returned to the Main Menu. Depending on what you were doing at the time, you may have to press the ESC key more than once to get to the Main Menu.

FIGURE 1—18


Disk: Drive 2
HELP
Escape: Main Menu
Main Menu
Help
Open-Apple:
This key is used in combination with other keys to request many of the special features of AppleWorks. For example, you can save the contents of any file by pressing S while you hold down Open-Apple. This example is shown below as @-S.
ESC:
The Escape key will erase an entry or let you leave what you are currently doing.
DELETE:
This key will usually remove the character preceding the cursor.
Use arrows to see remainder of Help
55K Avail.

Quitting AppleWorks

When you're ready to stop using AppleWorks, don't just turn off your computer. Press the ESC key to return to the Main Menu. Then select option 6, **Quit**. AppleWorks will ask you if you really want to quit. If you do, press the "Y" key. If there are any documents on your Desktop that have not been saved, AppleWorks will give you the opportunity to save them before the program terminates.

Now, on to word processing.

CHAPTER

2

WORD PROCESSING

The term *word processing* usually refers to a computer program that assists you in writing various kinds of documents—personal letters, office memos, term papers, or even books such as *AppleWorks: The Program for the Rest of Us*. The assistance such a program provides varies from one word processing program to another, but most of them offer the following features: full-screen editing, print formatting, and the ability to move sections of text from one point to another in the document.

Full-screen editing means that if you want to change something anywhere in your document, you can just move the cursor there and make the change. Print formatting refers to features such as margins, justification, type size (pica, elite, etc.), and pagination (automatic page numbering).

I. CREATING A NEW WORD PROCESSING DOCUMENT

The Word Processing section of AppleWorks performs all of these functions and several others as well. What we are going to do in this chapter is to create and format a word processing document from scratch. So that we're all working on the same document, Figure 2-1 shows an office memo from your company, Hot & Cold Inc., that I thought we'd use.

Using the Word Processor for the First Time

Before you start to type the memo, here are a few pointers to keep in mind.

1. Press the RETURN key only at the end of *paragraphs*. If you are used to typing on a typewriter, you may find this difficult to remember at first. But just keep typing until you reach the end of the paragraph. As you reach the end of a line, AppleWorks will automatically bring your cursor to the beginning of the next line on the screen. It will also bring whatever word you are currently typing to the beginning of the next line. In other words, AppleWorks will *not* break a word in the middle, leaving some of it at the end of one line and putting the rest at the beginning of the next. This process of bringing the entire word down to the beginning of the next line is called *word wraparound* and is a feature of most word processors.

FIGURE 2—1

To: Bill
Chuck
Penney

From: Mike

Subject: On Site Charges

As you know, for the past three years, Hot & Cold Inc. has been charging the same rate for on site labor, $40.00 per hour. While most of our competetors have adopted higher prices for both parts and labor, we have tried to "hold the line" in spite of our increasing costs. Unfortunately, I find it necessary to raise our labor charge from $40.00 to $45.00 per hour, effective immediately.

I want to be sure that our service policies are understood by all H & C employees so we can avoid customer misunderstandings. Here are some guidelines which should help you answer any service charge questions your on site customer might have.

1. Labor is billed at $45.00 per hour. Time starts when the service technician arrives at the customer's location.

2. There is a minimum one hour labor charge. If the job takes more than one hour, then time is billed by the quarter hour, rounded up to the nearest quarter hour. In other words, if the job takes one hour and twenty minutes, the customer is charged for an hour and a half.

3. If the job requires two men, the labor charge per hour will double.

4. We will not use customer purchased parts in our repairs because we cannot guarantee their quality.

5. A seven per cent state sales tax will be added to the cost of all parts, but not to labor.

6. We will be happy to estimate the cost of any job. Estimates are billed at a flat one hour charge, $45.00. If the customer elects to have us do the work, the $45.00 charge will be applied toward his final bill.

7. Payment is due upon completion of work unless the customer has an open account with us.

8. H & C guarantees its work, parts and labor, for a period of 90 days.

If we all understand and follow the above guidelines, there will be less chance for customer confusion. Keep this memo with you and feel free to show it to your customers, should there be any questions.

2. The cursor type that AppleWorks will choose for you is the *insert* cursor. This is the cursor that appears as a blinking underline symbol. If you place this cursor on top of an existing character on the screen (the arrow keys move the cursor around) and type, whatever you type will be inserted at the point on the screen where the cursor sits. All text to the right of the cursor will be "pushed" to the right as you type. The other cursor is the *overstrike cursor*, which you saw when you typed in the current date during the boot process. It looks like a blinking box. If you place this cursor on top of an existing character on the screen and type, each character you type replaces a character on the screen. You can switch between cursor types by typing an Apple -E (hold the OPEN-APPLE key down while you type the letter "E"). I have found the insert cursor to be more useful in word processing (I usually do more inserting than correcting), so I usually leave the cursor in the insert mode—but you should try it both ways to see which cursor is more useful to you.
3. Use the DELETE key to erase mistyped characters. It's the easiest and fastest way to correct errors. Each time you press the DELETE key, the character immediately to the left of the cursor is erased.
4. Notice, in the numbered items in the memo, that there are *three* spaces between the period following the number and the first word of the item. I know it sounds like a picky point, but it will be important later.

Working with the Desktop

Let's start typing the memo. First, boot up AppleWorks, if it's not already up and running. Next, from the Main Menu, select choice 1, **Add files to the Desktop**. Your screen should then look like Figure 2-2. Because we're going to create a new word processing document, select option 3, **Make a new file for the Word Processor**, from the Add Files Menu. Figure 2-3 displays the result of this selection. From the Word Processor folder select choice 1, **From scratch**. You will then be asked, at the bottom of the screen, to "Type a name for this new file:". Type **Office Memo** and press RETURN. Your screen should look like Figure 2-4. (*Note:* AppleWorks document names can be from 1 to 15 characters long. You may use any combination of letters (upper or lower case), numbers, periods, and spaces. The first character must be a letter.)

Typing Your Document

Now type the memo, exactly as it appears in Figure 2-1. Remember to press the RETURN key at the end of paragraphs only. You probably

FIGURE 2—2

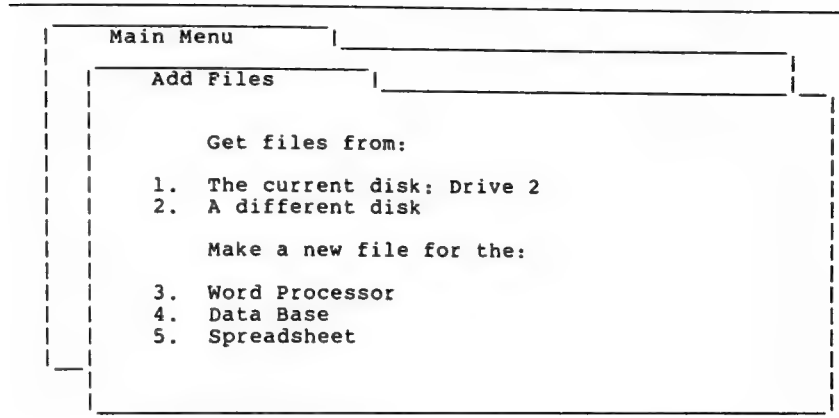


FIGURE 2—3

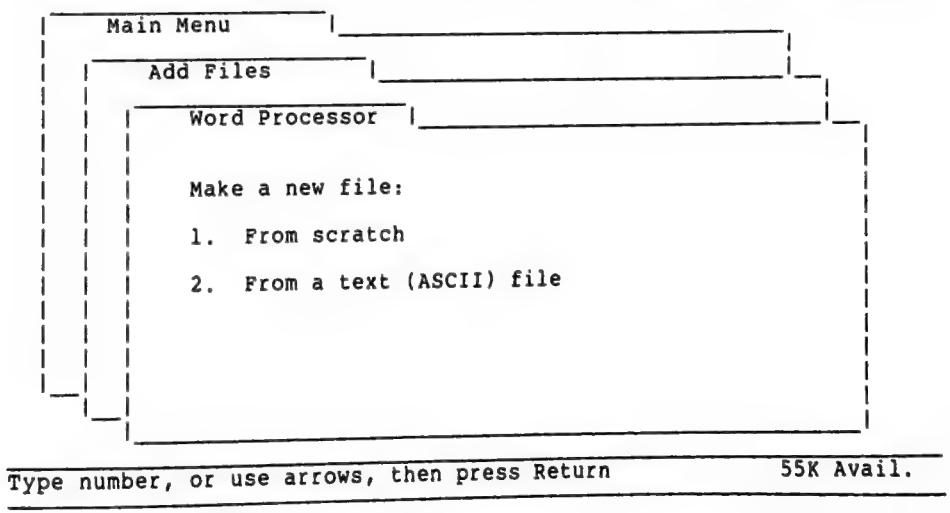
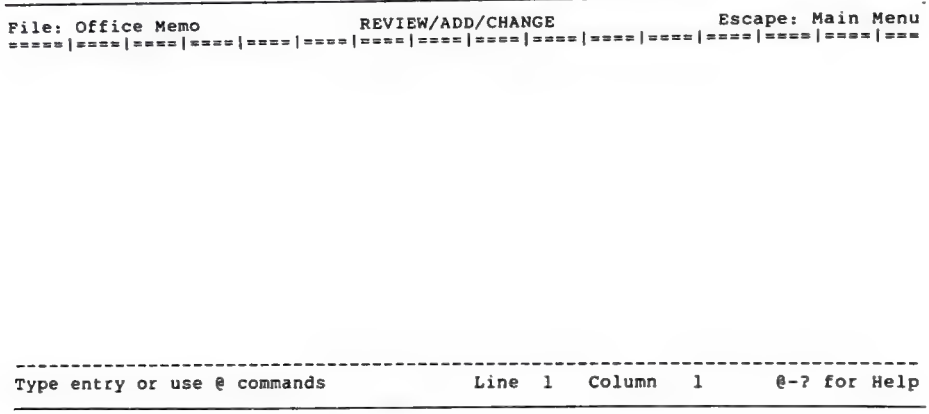


FIGURE 2—4



noticed that once you began typing the first paragraph, your cursor never got beyond column 60 on the screen. Don't worry; this is normal. The explanation has to do with AppleWorks' choice of left and right page margins and its choice of pica type size. We'll go into this much more deeply a little later in this chapter when we discuss print formatting. For now, just ignore it and keep typing.

Saving Your Document to Your Data Disk

Once you've finished typing the memo, you'll probably want to print it out. But before you do, it's a good idea to save the memo. In fact, it's a good idea to save your work every 5 minutes or so. My local power company has an annoying habit of momentarily interrupting service, and a momentary power failure is all it takes to wipe out your Apple's memory. This doesn't do any permanent damage, but whatever you were working on is gone! To limit the amount of loss, save your documents frequently.

AppleWorks makes it easy to save your work at any time. Just type **-S** and your document is automatically saved onto your data disk. If your computer system has two drives, AppleWorks will save the memo to the data disk in drive 2. If your computer system has one disk drive, AppleWorks will prompt you (after you type **-S**) to remove the Program disk from your disk drive and insert your data disk. After AppleWorks is through saving your memo, you will be prompted to switch back to the Program disk.

Printing Your Document

When your memo has been saved, turn on your printer and get ready to print what you have typed. You're going to print out several versions of this memo, so I hope you have a good supply of paper handy. To print out the memo, type ◆ -**P**. Press RETURN to accept the choice of where to start printing—**Print from? Beginning**. Select your printer from the Print Menu. Finally, press the RETURN key to accept the choice of one copy of the memo to be printed.

Your printer should print out the memo exactly as you typed it. In fact, it should look just like Figure 2-1.

The Help Screen

By now, I think you can probably see that you'll be using a number of special commands to get AppleWorks to do what you want it to do (◆ -S, ◆ -P, and ◆ -E, among others). To help you remember these commands, AppleWorks provides you with Help screens. Look at the bottom line on your monitor. At the left you see a general instruction, "Type entry or use @ commands." The "@" is highlighted and represents the OPEN-APPLE key (◆). (*Note:* On an Apple //c, the highlighted "@" is replaced by an open-apple symbol.) In the center of the bottom line is an indicator showing the current line and column position of your cursor. At the right is the instruction, "@-? for Help." Anytime you see this at the bottom of the screen, you can type ◆ -**?** and see a Help screen that will list all of the AppleWorks commands available to you. Try it! Type ◆ -**?** and look at the Help screen for the Word Processing section of AppleWorks. You can use the up- and down-arrow keys to scroll through the list of commands. Don't try to memorize them all at once; that's why AppleWorks has Help screens. When you want to return to your document, press ESC.

II. EDITING YOUR DOCUMENT

AppleWorks provides several ways to make changes in your word processing documents. These are discussed in the following sections.

Inserting Text

Suppose, for example, you wanted to insert the word "Service" just in front of the word "Charges" in the line near the top that reads "Subject: On Site Charges." Make sure that you are using the insert cursor (the one that looks like a blinking underline). Next, use the arrow keys to position the insert cursor so that it is on top of the "C" in "Charges." Now type the word "Service" (don't forget the space that separates "Service" from "Charges"). That was easy, wasn't it?

Replacing Text

The correction of most misspellings, on the other hand, usually involves substituting one letter for another. You probably noticed that I misspelled the word "competitors" in the third line of the first paragraph. Let's correct it now. This time we'll use the overstrike (blinking box) cursor. (Remember, you can switch cursor types by typing ⌘-**E**.) Move the overstrike cursor so that it sits on top of the second "e" in "competetors" and type **i**. That's all there is to it.

Resaving a Document

Save (⌘-S) this version of the memo because we're about to mess it up, and I want you to be able to load back this version a little later. This time, when you type ⌘-**S**, AppleWorks removes the old version of the memo that was saved earlier and replaces it with the current version. You'll see how to keep both the new and old versions of a document on your data disk a little later.

The Delete Command

Now let's suppose we wanted to delete one of the items in the memo—say, item 5. We could place the cursor at the end of item 5 and use the DELETE key to remove all the characters in item 5, one at a time. But there is a much faster way. Place the cursor on the number 5 and type ⌘-**D**. Press the down-arrow key twice. Note that each time you press the down-arrow key, a whole line is highlighted. The highlighted lines indicate which text is about to be deleted. If you wanted to delete only part of a line, you could use the left- and right-arrow keys to select a portion of the line. When you've got the section of text you want to delete

highlighted, press the RETURN key and the text will be deleted. If you change your mind about deleting (*before* you press the RETURN key), pressing ESC will abort the Delete command. By the way, text that has been deleted cannot be recovered. If you want it back, you have to type it in again.

The Replace Command

One of the most remarkable features of any word processor is its ability to perform what is called *global search and replacement*. What this function does is to search through the entire document (global) looking for a specific string of characters. It then replaces that string with a different string of characters. For example, you could have AppleWorks search an entire document and replace every occurrence of the word "he" with the word "she."

To show you how this works, suppose you wanted to replace every occurrence of "H & C" with "Hot & Cold." To do this, position the cursor at the very beginning of the document because the search process always begins from the current cursor position and continues to the end of the document. A quick way of moving the cursor to the beginning of your memo is to type ⌘ **-1**. (More about ⌘ -1 through ⌘ -9 a little later.) Now type ⌘ **-R**, and, if you look down at the bottom line on your screen, you'll see you have a choice of **Text** or **Case sensitive text**.

AppleWorks is asking whether it should pay attention to the case (upper or lower) of the text it's searching for. If you choose **Text** and tell it to search for "H & C" then it will find occurrences of "H & C," "H & c," or "h & c." If, however, you choose **Case sensitive text**, then a search for "H & C" will only find "H & C." For our example, choose **Text** by pressing RETURN. (You could also have just typed the letter "T," without pressing RETURN.)

You are asked, "Replace what?" Type the five characters **H & C** and press RETURN. AppleWorks now asks, "Replace with what?" Type **Hot & Cold** and press RETURN. Finally, you are asked if you want to replace "All" occurrences at once, or just "One at a time." If you select "One at a time," you will have to respond "Yes" or "No" at each occurrence in your document as to whether you want the replacement to take place. In this case, type **A** (don't press RETURN) to indicate all occurrences. Amazing, isn't it?

The Move Command

There is one more way you can edit text, and that is by copying or moving sections of text. Suppose, for instance, that we wanted to move up

the second paragraph in our memo so that it became the first paragraph. AppleWorks makes this easy.

First, move the cursor so that it sits on top of the first letter in the second paragraph, the letter "I." Type ⌘-**M** and choose **Within document** by pressing the letter "W" (don't press RETURN). AppleWorks now asks you to indicate by using the arrow keys how much text you want to move. Press the down-arrow key five times to highlight the entire second paragraph, including the blank line below the paragraph. Press RETURN to indicate that you have completed selecting the lines you want to move. Now move the cursor to the point in the document where you want the selected text to be moved—the first letter of paragraph 1, the letter "A"—and press RETURN. Presto!

Note: I'll talk about the two other Move options, **To the Clipboard (cut)** and **From the Clipboard (paste)**, in Chapter 5.

The Copy Command

The copy command, ⌘-C, works almost exactly like the move command. The only difference is that the original text is left in place. The text is "copied" instead of "moved."

Restoring the Original Memo

Now that we've pretty much messed up the original memo, let's throw away this version and load back the "good" version from your data disk.

REMOVING FILES FROM THE DESKTOP

To remove the current version of the memo, press ESC to go to the Main Menu. Select option 4, **Remove files from the Desktop**. AppleWorks allows you to have several files on the Desktop at the same time, and you'll use this feature later on. Right now, the only file listed should be "Office Memo." (See Figure 2-5.) Press the right-arrow key to select this document to be removed. If you had several documents on the Desktop, they would all be listed, and you could use the down-arrow key to move through the list and the right-arrow key to select those you wanted to remove from the Desktop.

If you were to select a document by mistake, you could use the left-arrow key to cancel the selection.

Press RETURN to indicate you're through selecting the documents you want to remove. Your screen should look like Figure 2-6. AppleWorks

FIGURE 2—5

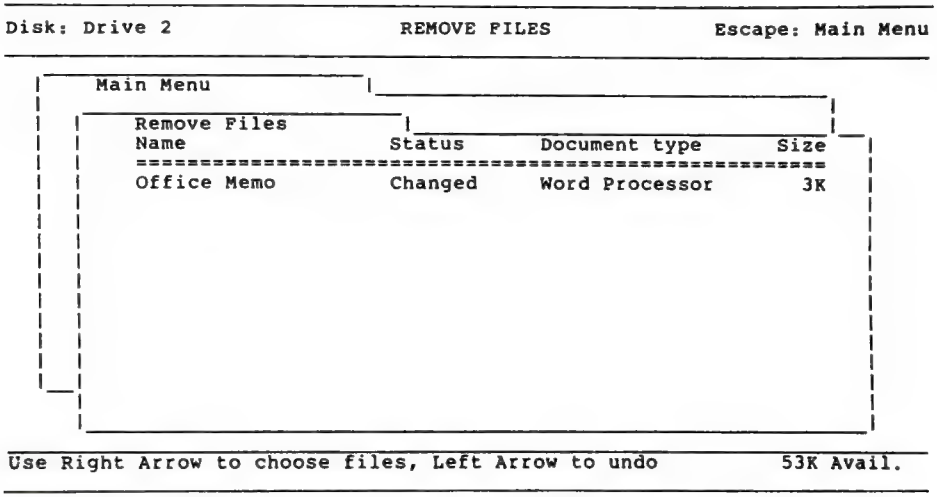
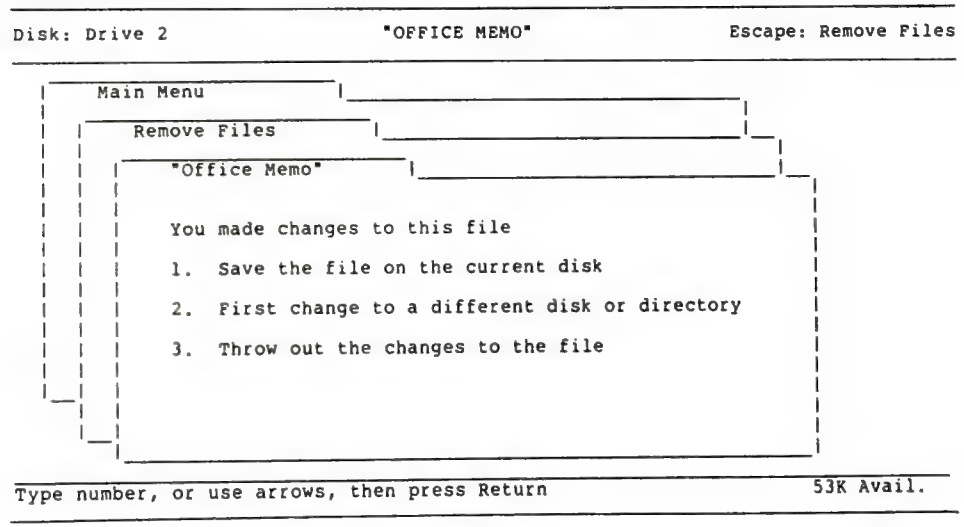


FIGURE 2—6


Disk: Drive 2
"OFFICE MEMO"
Escape: Remove Files
Main Menu
Remove Files
"Office Memo"
You made changes to this file
1. Save the file on the current disk
2. First change to a different disk or directory
3. Throw out the changes to the file
Type number, or use arrows, then press Return
53K Avail.

is asking you if you want to save the document to disk, before it removes the document from the Desktop. Because you don't care about this version of the memo, select option 3, **Throw out the changes to the file**. And when you are asked, "Do you really want to do this?" press the "Y" key to indicate "Yes." AppleWorks will then throw away the file and return you to the Main Menu.

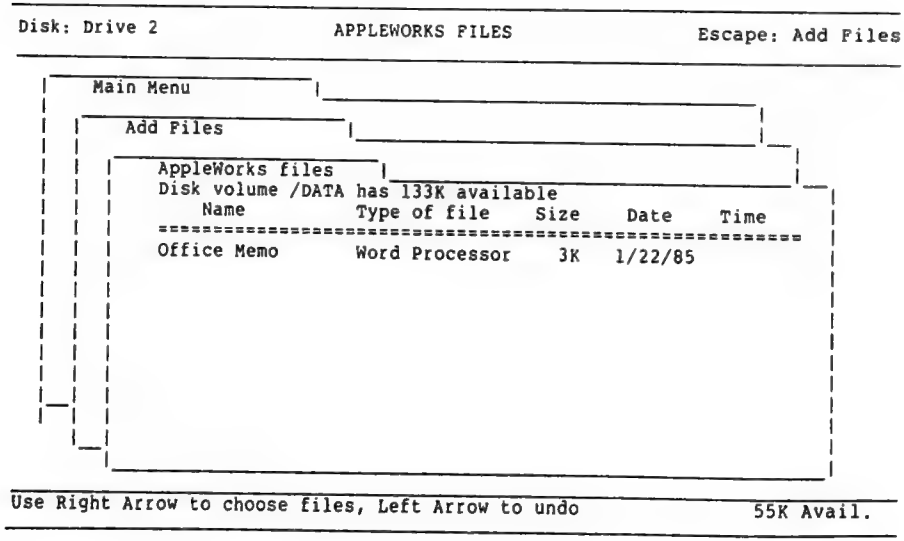
LOADING A FILE FROM THE DATA DISK

You now want to retrieve the version of the memo you last saved. To do this, select option 1, **Add files to the Desktop**, from the Main Menu. This is the same Add Files Menu you saw earlier (Figure 2-2), but this time you will choose option 1, **Get files from The current disk: Drive 2**. (*Note:* Those of you with one-drive systems will see **The current disk: Drive 1**, and, when you select this option, you will be prompted to remove your AppleWorks Program disk from your disk drive and insert your data disk.)

Figure 2-7 shows what your screen should look like. You'll see that your "Office Memo" document is the only file on your data disk.

Look at the second line in the AppleWorks Files folder, the one that says "Disk volume /DATA has 133K available." The first thing you should notice is that your data disk's name is listed by AppleWorks as "/DATA" even though when you formatted it you called it "DATA." Don't worry, this is normal and has to do with the way ProDOS (AppleWorks' disk operating system) names disks and files. There is a discussion of ProDOS disk and file names in Chapter 6, in the section on using AppleWorks with a Profile hard disk. The second thing to notice is that AppleWorks is telling you how much blank space is left on your data disk for saving other documents (133K). As you save more and more documents to your data disk, the space remaining will, of course, decrease. Don't try to use every available bit of space on your data disk. When the

FIGURE 2—7



space available decreases below 10K or so, format a new data disk (you can give it the same name, "DATA," or a different one) and begin using it.

If you had several documents on your data disk, the AppleWorks Files folder would show you the entire list and you could scroll through the list using the up- and down-arrow keys. You could indicate which file(s) you wanted to load onto the Desktop by pressing the right-arrow key as your choice is highlighted.

With only one file on your data disk, the "Office Memo," you can just press the RETURN key to choose it. Your "Office Memo" should now be loaded and your screen should look like Figure 2-8. (*Note:* If your computer system has one disk drive, you will be prompted to remove your data disk from the drive, insert the AppleWorks Program disk, and press RETURN.)

III. MOVING AROUND IN YOUR DOCUMENT

AppleWorks provides several ways to move your cursor within your document.

FIGURE 2—8

```
File: Office Memo              REVIEW/ADD/CHANGE              Escape: Main Menu
=====|====|====|====|====|====|====|====|====|====|====|====|====|====|====|===
To:         Bill
            Chuck
            Penney

From:       Mike

Subject:    On Site Service Charges


As you know, for the past three years, Hot & Cold Inc. has
been charging the same rate for on site labor, $40.00 per
hour. While most of our competitors have adopted higher
prices for both parts and labor, we have tried to "hold the
line" in spite of our increasing costs. Unfortunately, I
find it necessary to raise our labor charge from $40.00 to
$45.00 per hour, effective immediately.

I want to be sure that our service policies are understood
by all H & C employees so we can avoid customer
misunderstandings. Here are some guidelines which should
--------------------------------------------------------------------------------
Type entry or use @ commands          Line 1  Column  1        @-? for Help
```

The Arrow Keys

You already know how to move the cursor using the four arrow keys, but each of the arrow keys can be used in *two* ways. If you press either the left- or right-arrow key by itself, the cursor moves left or right one character. But if you hold down the ⌘ key while you press the left- or right-arrow keys, the cursor moves left or right one *word*. Similarly, the up- and down-arrow keys by themselves move the cursor up or down one line. If you hold down the ⌘ key, the up- and down-arrow keys move the cursor a whole screen at a time.

⌘ -1 through ⌘ -9

Another way of moving the cursor is to use ⌘ 1 through ⌘ -9. As I mentioned earlier, ⌘ -1 always moves the cursor to the beginning of the document. And, that's right, ⌘ -9 moves the cursor to the end of the document. The other ⌘ -number keys move the cursor proportionally through the document. For example, ⌘ -5 moves the cursor to the halfway point in your document. These keys perform the same way in all three AppleWorks applications: Word Processing, Data Base, and Spreadsheet.

The Find Command

AppleWorks allows you to find a particular word or phrase in your document. All you do is tell AppleWorks what you're looking for and your document is searched until the specified word or phrase is found (or the end of the document is reached). Let's try it. First, type ⌘ **-1**. You want your cursor at the beginning of your memo because the Find command starts looking from the current position of the cursor. Now, type ⌘ **-F**.

While the Find command becomes more useful as the size of your document increases, you can see most of its features with your "Office Memo." At the bottom of the screen, you'll see five options for Find: **Text**, **Page**, **Marker**, **Case sensitive text**, and **Options for printer**. You select which one you want by typing the first letter of the option: "T," "P," "M," "C," or "O." (You can also make the selection by using the right-arrow key to highlight your choice and pressing RETURN.) Three of these find options are discussed in the following sections. I'm going to put off discussing **Marker** and **Options for printer** until after we discuss document formatting.

FIND TEXT

Let's try out some of these Find options. Type **T** for Text and you'll be prompted by the message, "Find what text?" Type **h & c** in lower case and press RETURN. AppleWorks finds the first occurrence of the five characters "h & c" and highlights them for you. You are then asked if you want to find the next occurrence. Type **Y** for yes, **N** for no. If the Find command cannot find what you've told it to look for, it will beep at you and tell you, "Not found, press Space Bar to continue." Notice that while we specified the search string as "h & c," AppleWorks found occurrences of "H & C." In other words, the **Find text** option doesn't pay attention to case.

FIND CASE SENSITIVE TEXT

Now let's try the **Case sensitive text** option. Type **-1**, **-F**, and **C** (don't press RETURN). AppleWorks remembered the "h & c" from the last **Find text** search. Change your cursor to the overstrike cursor (-E), if you're currently using the insert cursor, type **h & c**, and press RETURN. This time, using **Find Case sensitive text**, AppleWorks couldn't find a match for "h & c"—at least it shouldn't have. If we were to ask it to **Find Case sensitive text** "H & C," it *would* be successful.

FIND PAGE

Let's try to use the **Find page** feature, and don't worry if it doesn't work the first time. Type **-1** to go to the beginning of your memo and then **-F** and **P**. In response to "Page number?" type **1** and press RETURN. What happened? Your Apple beeped at you, and at the bottom of your screen you see the message "Not found, press Space Bar to continue." Press the space bar and let's see what the problem is. You are asking AppleWorks to find the end of page 1 of your document. AppleWorks is telling you that it couldn't find the end of page 1. The reason AppleWorks couldn't find page 1 is that you didn't tell AppleWorks to calculate where the page breaks (where one page ends and the next one begins) occurred in your memo.

CALCULATE PAGE NUMBERS

This calculation of page breaks is performed automatically when you print your document, but we can have AppleWorks calculate page breaks without printing, by using the Calculate command, -K. Type **-K**, select your printer from the displayed list, and see what AppleWorks does.

As you scroll through your memo, you'll see a dashed line labeled "End of page 1" and, a bit further on, another dashed line labeled "End of page 2" (see Figure 2-9). These page break indicators will remain until you make any change to your document. While they're still there, let's try the **Find Page** feature again. Type **⌘-1**, **⌘-F**, and **P**, and again respond "1" to "Page number?" This time, AppleWorks had no trouble finding the end of page 1. Yes, I know, you could have found it too just by scrolling through the memo. But if your document were 25 or 30 pages long, the **Find Page** option would save you time.

FIGURE 2—9

```
File: Office Memo              REVIEW/ADD/CHANGE              Escape: Main Menu
=====|====|====|====|====|====|====|====|====|====|====|====|====|====|====|===

6.   We will be happy to estimate the cost of any job.
Estimates are billed at a flat one hour charge, $45.00. If
the customer elects to have us do the work, the $45.00
charge will be applied toward his final bill.

7.   Payment is due upon completion of work unless the
customer has an open account with us.

8.   H & C guarantees its work, parts and labor, for a
period of 90 days.

If we all understand and follow the above guidelines, there
will be less chance for customer confusion. Keep this memo
- - - - - - - - - - - - - - - - End of Page 1 - - - - - - - - - - - - - - - -
with you and feel free to show it to your customers, should
there be any questions.
- - - - - - - - - - - - - - - - End of Page 2 - - - - - - - - - - - - - - - -


--------------------------------------------------------------------------------
Type entry or use @ commands          Line 41  Column  1      @-? for Help
```

The Tab Command

There is one other way to move your cursor to a desired place on the screen and that is to use the Tab command, **⌘-T**. If you have used a typewriter, you are probably familiar with tabs. Tabs are positions on the 80-column line to which you can move your cursor by pressing a single key, the TAB key. Let's take a practical example. Suppose you wanted to indent the first line of each paragraph in a document 6 spaces. You could, of course, hit the space bar 6 times whenever you started a new paragraph, but there is an easier way to do this using tabs.

At the top of your screen (second line) you'll see a line of "=" symbols interspersed with " | " characters. This is called the Tab Line. Each " | " represents a tab stop. When you begin a new word processing document, AppleWorks automatically sets tabs at columns 6, 11, 16, 21, etc. To see

how this works, try pressing the TAB key on your keyboard a few times.

Now let's change the default tab settings. Type ⌘-**T**. At the bottom of the screen you see that the Tab command recognizes only three characters: "S" for "Set," "C" for "Clear," and "R" for "Remove all." At the far right is an indicator showing the horizontal position of the cursor. Type **R** and see that all of the "|" characters disappear from the Tab Line. You have just removed all of the preset tabs.

You can use the left- and right-arrow keys to move the cursor back and forth along the Tab Line. To set a tab at a particular position, move the cursor to the position you want, column 6, for example. (Looking at the cursor indicator on the bottom line will help you to place the cursor accurately.) Type **S** to set the tab. If you make a mistake and want to clear a single tab, place the cursor over the "|" character and type **C**. When you're through setting your tabs, press the ESC key. Now, any time you want to move to a tab position to the right of your cursor's position, just press the TAB key. If you want to "back up" to a tab to the left of your cursor, hold down the OPEN-APPLE key while you press TAB. *Note:* You can only tab as far to the right as your right margin will allow (more about margins in a moment).

IV. PRINT FORMATTING

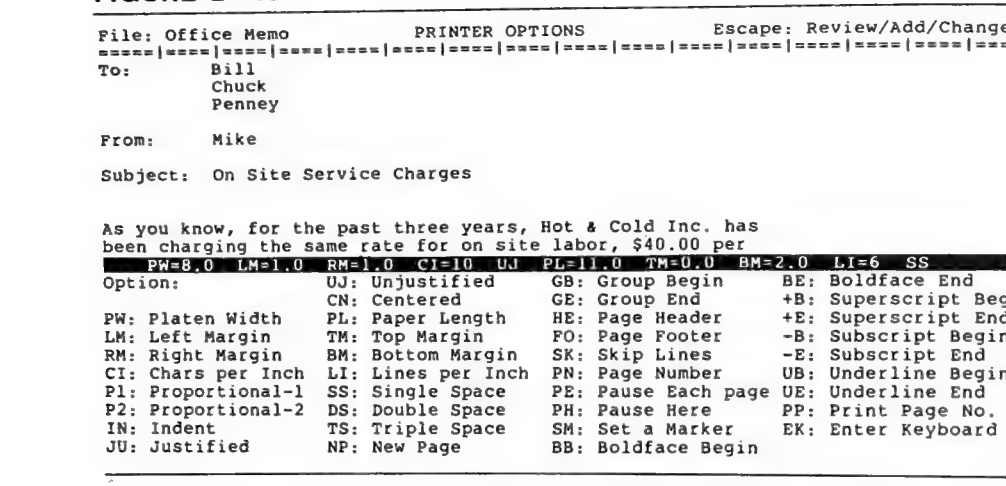
AppleWorks has a large variety of print formatting options. These allow you to "dress up" your documents and make them look more professional.

The Printer Options Screen

Type ⌘-**O** and look at Figure 2-10. The screen display for Printer Options occupies the lower 11 lines on the screen. (*Note:* If you are not using version 1.2 of AppleWorks, your Printer Options screen may not show all of the commands in Figure 2-10.)

All printer options are selected by typing the two-character code, which appears to the left of each option, and pressing RETURN. Some options, such as margins, require a numerical value to be typed in immediately after the two-character option code. Pressing ESC, instead of typing an option code, returns you to your document.

FIGURE 2—10



You should keep one thing in mind whenever you use a printer option. *Every option takes effect at the point in your document where your cursor was sitting when you typed* ⌘ *-O.* Most options continue in effect until the end of the document. There are some exceptions: Boldfacing and underlining remain "on" only until the end of the paragraph or until they are turned "off," whichever comes first. Subscripting and superscripting are automatically cancelled at the end of any line.

The Printer Options Status Line

If you're in Printer Options, ESC out to your memo. Type ⌘ **-1** to move your cursor to the top, and type ⌘ **-O** to get into Printer Options again. Look at the highlighted line on the screen. This is the Status Line for Printer Options. It tells you the current value of the following format options: **Platen Width** (PW), **Left Margin** (LM), **Right Margin** (RM), **Characters per Inch** (CI), **Justification** (UJ, JU, or CN), **Paper Length** (PL), **Top Margin** (TM), **Bottom Margin** (BM), **Lines per Inch** (LI), and **Line Spacing** (SS, DS, or TS).

When you begin a new word processing document, AppleWorks chooses values for each of these format options. As you learned earlier, these prechosen values are called the *default* values, and, though you can change any or all of them, each *new* document will start out with the defaults listed in Table 2-1.

TABLE 2-1

Printer Option	Default Value
Platen Width	8.0 inches
Left Margin	1.0 inch
Right Margin	1.0 inch
Characters per Inch	10
Justification	UJ (unjustified)
Paper Length	11.0 inches
Top Margin	0.0 inches
Bottom Margin	2.0 inches
Lines per Inch	6
Line Spacing	SS (single spaced)

Margins

Now you understand why, when you were typing your memo, the cursor never got beyond column 60. Because AppleWorks sets platen width to 8 inches, and left and right margins to 1 inch each, only 6 inches of space are left on each line for your text. And, because the default for characters per inch is 10, a 6-inch line with 10 characters per inch gives 60 characters per line. Here's a simple formula that calculates the number of characters per line your printer will print out:

Characters per Line = (PW - LM - RM) × CI

You noticed that even with a left margin of 1 inch, AppleWorks displayed your text starting in column 1, rather than in column 11. This is just the way AppleWorks chooses to display your document on the screen. Line length is "shortened" by both left and right margins, but text is always shown starting in column 1 (unless you use more than one left margin value in your document). However, when you print your document, it will show a 1-inch margin at both left and right edges.

LEFT AND RIGHT MARGINS

Let's change the left margin in the middle of your office memo so that each line of the eight numbered items starts half an inch further to the right. First, ESC out of Printer Options and place the cursor on top of the number "1" of the first item. (You have to get out of Printer Options in order to move the cursor.) Reenter Printer Options (type **-O**) and change the left margin to 1.5 inches.

To do this, type **LM** and press RETURN; then type **1.5** and press RETURN. Now, ESC back to your memo and look at the effect of your left margin change (see Figure 2-11). The other three margins, right, top, and bottom, can all be changed the same way.

Let's try one more change. Leaving your cursor at the same place in your memo (over the "1"), go back to Printer Options (⌘ -O) and change the value of the right margin to 1.5 inches. Type **RM** and press RETURN; then type **1.5** and press RETURN. ESC out and compare your memo to Figure 2-12.

There is one small problem. If you look at the last paragraph in your memo, you'll see that it, too, has been affected by the changes in the left and right margin values. What you ought to do is to change the margins back to their original values for the last paragraph. To do this, place the cursor over the first letter of the first word in the last paragraph, the letter "I." Now, enter Printer Options and change the left margin to 1 inch and the right margin to 1 inch. ESC back to your memo and compare it with Figure 2-13.

TOP AND BOTTOM MARGINS

Usually, if top and bottom margins are altered, the change is made at the beginning of the document so that all pages of the document have the same top and bottom margins. You might wonder why the default value for top margin is 0 inches while the bottom margin is set to 2.0

FIGURE 2—11

```
File: Office Memo              REVIEW/ADD/CHANGE              Escape: Main Menu
=====|====|====|====|====|====|====|====|====|====|====|====|====|====|====|===
I want to be sure that our service policies are understood
by all H & C employees so we can avoid customer
misunderstandings. Here are some guidelines which should
help you answer any service charge questions your on site
customer might have.

     1.   Labor is billed at $45.00 per hour. Time starts
     when the service technician arrives at the customer's
     location.

     2.   There is a minimum one hour labor charge. If the
     job takes more than one hour, then time is billed by
     the quarter hour, rounded up to the nearest quarter
     hour. In other words, if the job takes one hour and
     twenty minutes, the customer is charged for an hour and
     a half.

     3.   If the job requires two men, the labor charge per
     hour will double.

--------------------------------------------------------------------------------
Type entry or use @ commands        Line 25  Column  6          @-? for Help
```

FIGURE 2—12

```
File: Office Memo              REVIEW/ADD/CHANGE              Escape: Main Menu
=====|====|====|====|====|====|====|====|====|====|====|====|====|====|====|===
I want to be sure that our service policies are understood
by all H & C employees so we can avoid customer
misunderstandings. Here are some guidelines which should
help you answer any service charge questions your on site
customer might have.

     1.   Labor is billed at $45.00 per hour. Time
     starts when the service technician arrives at the
     customer's location.

     2.   There is a minimum one hour labor charge. If
     the job takes more than one hour, then time is
     billed by the quarter hour, rounded up to the
     nearest quarter hour. In other words, if the job
     takes one hour and twenty minutes, the customer is
     charged for an hour and a half.

     3.   If the job requires two men, the labor charge
     per hour will double.

--------------------------------------------------------------------------------
Type entry or use @ commands          Line 26  Column  6          @-? for Help
```

FIGURE 2—13

```
File: Office Memo              REVIEW/ADD/CHANGE              Escape: Main Menu
=====|====|====|====|====|====|====|====|====|====|====|====|====|====|====|===
     do the work, the $45.00 charge will be applied
     toward his final bill.

     7.   Payment is due upon completion of work unless
     the customer has an open account with us.

     8.   H & C guarantees its work, parts and labor,
     for a period of 90 days.

If we all understand and follow the above guidelines, there
will be less chance for customer confusion. Keep this memo
with you and feel free to show it to your customers, should
there be any questions.

--------------------------------------------------------------------------------
Type entry or use @ commands          Line 61  Column  1          @-? for Help
```

inches. These values are intended to give a 1-inch margin at the top and bottom of each printed page according to the following logic. With most printers, it is easier to establish the line where the document will begin by physically adjusting the paper in the printer. Generally, you would want the first line of text about 1 inch from the top of the page. With a paper length of 11 inches and a bottom margin of 2 inches, your printer will type 9 inches of text (11 - 2 = 9) and stop 1 inch from the bottom of

the page. The reason it stops 1 inch from the bottom rather than 2 inches is that you have already advanced the paper 1 inch at the top. When your printer reaches the end of the page, AppleWorks automatically advances the paper 2 inches. If you are using tractor-feed paper, this action positions your printer 1 inch from the top of the second sheet.

The maximum number of lines of text that will be typed on a single page by your printer is determined by the values of four Printer Options: **Paper Length**, **Top Margin**, **Bottom Margin**, and **Lines per Inch**. The formula to compute the number of lines per page is:

$$\textbf{Lines per Page} = (\textbf{PL} - \textbf{TM} - \textbf{BM}) \times \textbf{LI}$$

If you plug in the default values you get:

$$\textbf{Lines per Page} = (11 - 0 - 2) \times 6 = 54$$

Indent

The **Indent** option doesn't quite operate the way you probably imagine it does. It is *not* used to indent the first line of paragraphs; you have to do that yourself (see the discussion about the Tab command). Instead, the **Indent** option is used to indent all the lines *except* the first line in a paragraph. The reason for this can best be understood by using the option with your memo. Look at the eight numbered items. Each one begins with a number, a period, and three spaces before the first word of the item. What we would like to do is to "hang" these five characters to the left of the item. (Look at Figure 2-14 and you'll see what I mean.)

FIGURE 2—14

```
File: Office Memo              REVIEW/ADD/CHANGE              Escape: Main Menu
=====|====|====|====|====|====|====|====|====|====|====|====|====|====|====|===
     5.   A seven per cent state sales tax will be
          added to the cost of all parts, but not to
          labor.

     6.   We will be happy to estimate the cost of any
          job. Estimates are billed at a flat one hour
          charge, $45.00. If the customer elects to
          have us do the work, the $45.00 charge will
          be applied toward his final bill.

     7.   Payment is due upon completion of work unless
          the customer has an open account with us.

     8.   H & C guarantees its work, parts and labor,
          for a period of 90 days.

If we all understand and follow the above guidelines, there
will be less chance for customer confusion. Keep this memo
with you and feel free to show it to your customers, should
there be any questions.
--------------------------------------------------------------------------------
Type entry or use @ commands          Line 46  Column  1       @-? for Help
```

Place your cursor back on top of the number "1" in the first item. Enter Printer Options (⌘ **-O**) and change the indent to five characters. To do this, type **IN** and RETURN; then type **5** and RETURN. ESC out and your memo should look *almost* like Figure 2-14. The only difference is that last paragraph, again. It was affected by the **Indent** option along with the numbered items. To correct this, we'll change the value of the indent back to 0 at the point where the last paragraph begins. So, first move your cursor to the "I" in "If." Then go to Printer Options, change the indent to 0 (type **IN** and RETURN; type **0** and RETURN), and ESC out. Now your memo should look exactly like Figure 2-14.

Changing the Name of a Document

I think it's a good idea to save what you've done so far. But rather than replace the original memo with this formatted memo, we'll keep the old version on the disk and add this new version. Normally, when you save a document that has already been saved on disk, the current version *replaces* the older version on the disk. (And, normally, that's what you want it to do.) To prevent this replacement, you have to change the *name* of your document. Type ⌘ **-N** and look at the bottom line. You are being prompted to "Type filename:". And the current file name, "Office Memo," is being displayed. Type CONTROL-Y to erase the current file name (hold the CONTROL key down while you type **Y**). The CONTROL-Y command erases all the characters from the cursor to the end of the line. Let's rename the memo, "Formatted Memo." Type **Formatted Memo** and press RETURN.

Save the new, renamed version of the memo by typing ⌘ **-S**. *Note:* The next time you see a list of the documents on your data disk, you'll see both "Office Memo" *and* "Formatted Memo."

Justification

The term *justification* refers to *how* a line of text is printed relative to the left and right margins. AppleWorks provides three justification options.

UNJUSTIFIED

The first option is **Unjustified** (UJ) and is the default setting. **Unjustified** prints each line starting at the left margin and ending either at or before the right margin, depending on the length of the last word on the line

(see a discussion of word wraparound at the beginning of this chapter). The right edge of the printed document is ragged because some lines will "come out even" with the last word extending exactly to the right margin, while other lines will stop short of the right margin because the next word was so long that it was wrapped around to the next line.

JUSTIFIED

The second option is **Justified** (JU). When **Justified** is selected, lines of text are printed starting at the left margin and ending at the right margin. How do the lines always come out even, you ask? Simple. AppleWorks adds enough extra spaces between words to make each line extend all the way from the left to the right margin. Let's see how this works.

First, print out the "Formatted Memo" just as it is. (Type **-P**, press RETURN to have your memo start printing from the beginning, select your printer from the list, and accept one copy by pressing RETURN again.) Now let's change the justification. Move the cursor to the top of your memo (**-1**) and enter Printer Options (**-O**). Select the **Justified** option by typing **JU** and pressing RETURN. ESC back to your document. Notice that the change in justification doesn't alter how the document appears on your screen. But print it out again and compare this printed version with the previous one. (See Figure 2-15.)

CENTERED

The third justification option is **Centered**. Here, lines of text are printed so that they are centered between the left and right margins. This option is often used when typing titles.

To demonstrate centered justification, let's add today's date to the top of the memo. Make sure that the cursor is at the top of the memo and then enter Printer Options. Type **CN**, press RETURN, and ESC. Now your document looks like Figure 2-16. What happened? The whole document is centered, but don't worry. We'll fix it in a moment.

Press the RETURN key twice and then press the up-arrow key twice. (This allows you to type above the top line of your document.) Now type today's date and *press RETURN*. Notice that your cursor automatically jumps to a position halfway between the left and right margins so that as you type the date, it is centered.

What we have to do now is to "undo" the centering effect for the rest of the document. Enter Printer Options (-O), type **JU** or **UJ** (whichever format you like best), press RETURN, and ESC. The rest of your memo is back to normal and your date is still centered, as in Figure 2-17.

FIGURE 2—15

To: Bill
Chuck
Penney

From: Mike

Subject: On Site Service Charges

As you know, for the past three years, Hot & Cold Inc. has been charging the same rate for on site labor, $40.00 per hour. While most of our competitors have adopted higher prices for both parts and labor, we have tried to "hold the line" in spite of our increasing costs. Unfortunately, I find it necessary to raise our labor charge from $40.00 to $45.00 per hour, effective immediately.

I want to be sure that our service policies are understood by all H & C employees so we can avoid customer misunderstandings. Here are some guidelines which should help you answer any service charge questions your on site customer might have.

1. Labor is billed at $45.00 per hour. Time starts when the service technician arrives at the customer's location.

2. There is a minimum one hour labor charge. If the job takes more than one hour, then time is billed by the quarter hour, rounded up to the nearest quarter hour. In other words, if the job takes one hour and twenty minutes, the customer is charged for an hour and a half.

3. If the job requires two men, the labor charge per hour will double.

4. We will not use customer purchased parts in our repairs because we cannot guarantee their quality.

5. A seven per cent state sales tax will be added to the cost of all parts, but not to labor.

6. We will be happy to estimate the cost of any job. Estimates are billed at a flat one hour charge, $45.00. If the customer elects to have us do the work, the $45.00 charge will be applied toward his final bill.

7. Payment is due upon completion of work unless the customer has an open account with us.

8. H & C guarantees its work, parts and labor, for a period of 90 days.

If we all understand and follow the above guidelines, there will be less chance for customer confusion. Keep this memo with you and feel free to show it to your customers, should there be any questions.

FIGURE 2—16

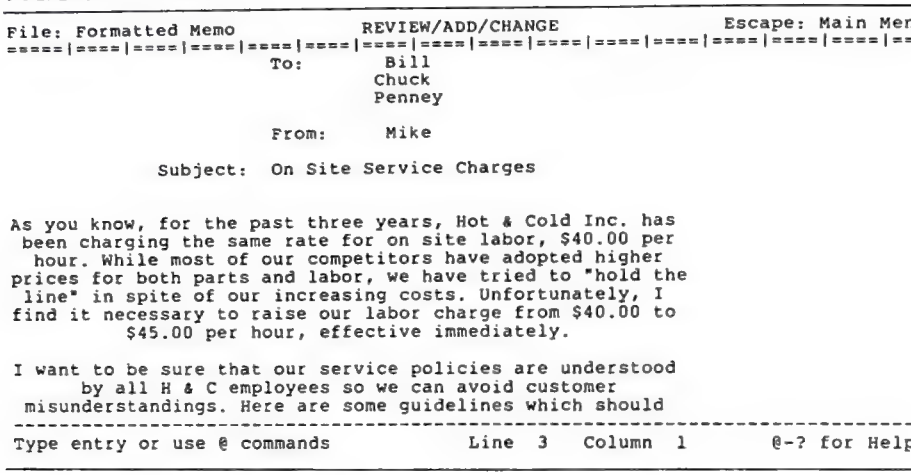
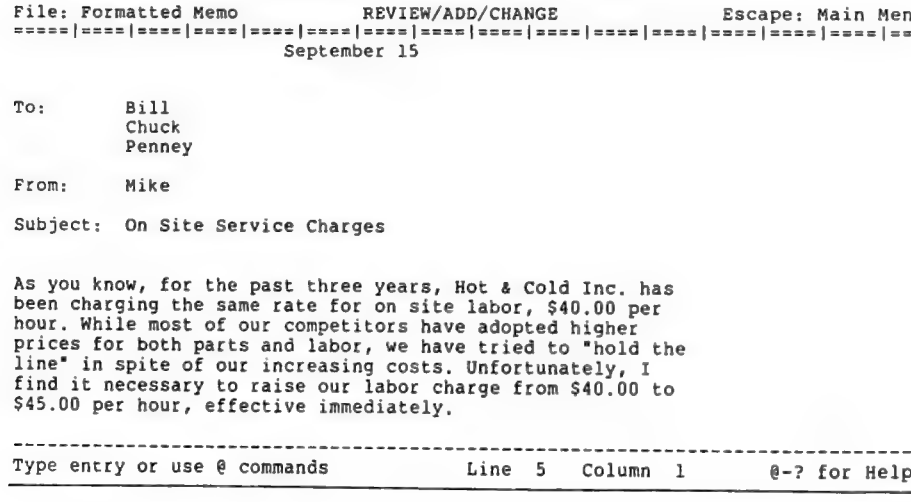

File: Formatted Memo
REVIEW/ADD/CHANGE
Escape: Main Menu
To: Bill
Chuck
Penney
From: Mike
Subject: On Site Service Charges
As you know, for the past three years, Hot & Cold Inc. has been charging the same rate for on site labor, $40.00 per hour. While most of our competitors have adopted higher prices for both parts and labor, we have tried to "hold the line" in spite of our increasing costs. Unfortunately, I find it necessary to raise our labor charge from $40.00 to $45.00 per hour, effective immediately.
I want to be sure that our service policies are understood by all H & C employees so we can avoid customer misunderstandings. Here are some guidelines which should
Type entry or use @ commands
Line 3 Column 1
@-? for Help

FIGURE 2—17


File: Formatted Memo
REVIEW/ADD/CHANGE
Escape: Main Menu
September 15
To: Bill
Chuck
Penney
From: Mike
Subject: On Site Service Charges
As you know, for the past three years, Hot & Cold Inc. has been charging the same rate for on site labor, $40.00 per hour. While most of our competitors have adopted higher prices for both parts and labor, we have tried to "hold the line" in spite of our increasing costs. Unfortunately, I find it necessary to raise our labor charge from $40.00 to $45.00 per hour, effective immediately.
Type entry or use @ commands
Line 5 Column 1
@-? for Help

Making Printer Options Visible

There are times when it would be nice to see what Printer Options have been embedded in your document. AppleWorks allows you to see these options by pressing ⌘-Z, the Zoom command. Try it. Not only do you see all your Printer Options, but those strange-looking squares indicate each place in your memo where you pressed the RETURN key. If you press ⌘-Z a second time, the Printer Options are hidden again.

Deleting a Printer Option

Suppose you wanted to delete one of the Printer Options. This is a little hard to do because, normally, you can't see them. However, as you found out in the section above, the Zoom command makes Printer Options visible. Once you can see them, all you have to do to delete one is to move your cursor to the line the option is on, type ⌘ **-D**, and press RETURN.

Let's delete the unnecessary **Justified** option at the very top of the memo (see Figure 2-18). Type ⌘ **-Z** to Zoom in on the Printer Options. Move your cursor to the top line, type ⌘ **-D**, and press RETURN.

FIGURE 2—18

```
File: Formatted Memo          REVIEW/ADD/CHANGE              Escape: Main Menu
=====|====|====|====|====|====|====|====|====|====|====|====|====|====|====|===
--------Justified
--------Centered
                          September 15
--------Justified


To:       Bill
          Chuck
          Penney

From:     Mike

Subject:  On Site Service Charges

As you know, for the past three years, Hot & Cold Inc. has
been charging the same rate for on site labor, $40.00 per
hour.  While most of our competitors have adopted higher
prices for both parts and labor, we have tried to "hold the
line" in spite of our increasing costs. Unfortunately, I
-------------------------------------------------------------------------------
Type entry or use @ commands            Line  5   Column  1      @-? for Help
```

Line Spacing

Changing the line spacing from single spaced (the default) to double or triple spaced is easy. Just remember to move your cursor to the point in your document where you want the change to begin. From Printer Options, type the two-character code for the kind of spacing you want—SS, DS, or TS—and press RETURN.

Lines per Inch

Many printers support more than one value of vertical distance between lines. All printers provide 1/6-inch distance between lines; this, of course, gives 6 lines per inch. Some printers also provide 1/8-inch movement (8 lines per inch) as well as other values. The printer

option **Lines per Inch** (LI) allows you to select either 6 or 8 lines per inch.

You might wonder what AppleWorks would do if you selected a value for this option (or any other Printer Option) that your printer *didn't* support. The answer is that AppleWorks simply ignores Printer Options that don't apply to your printer.

Printer Type Sizes and Styles

Most dot matrix printers provide several different type sizes. Some also provide for proportional printing. Apple's Imagewriter printer, for example, features printing at 4, 5, 6, 9, 10, 12, 13, 15, and 17 characters per inch, as well as two sizes of proportional printing. The manual that came with your printer will have a list or chart of the various type sizes that it uses. (If your printer was installed as a custom printer, you had to type in the printer command codes for each different type size.)

If you use a daisy wheel printer, the print wheel determines the type size, and, unless you change the print wheel, you'll have to make do with one type size.

Changing the number of characters per inch for your printer is easy. From Printer Options, you type **CI** and RETURN, then the value you want (5, 12, 17, etc.), and press RETURN. You can change the value for **Characters per Inch** at the beginning of any paragraph in your document, but AppleWorks will not let you change the number of characters per inch in the middle of a paragraph.

When your printer is printing at, say, 10 characters per inch, its print head is moving to the right exactly 1/10 of an inch after every character it types, regardless of the width of the character. Some printers, however, have a printing mode in which they move their print head a *variable* amount of distance, depending on the width of the character. In other words, the print head would move further to the right after typing the letter "w" than it would after typing the letter "i," because a "w" is wider than an "i." This mode of printing is called *proportional* printing, and AppleWorks has two printer option commands (P1 and P2) to allow you to make use of this printer feature. The reason for two proportional printing commands is that some printers (Apple's Imagewriter, for one) have two *sizes* of proportional printing. *Note:* If your printer was installed as a custom printer, the proportional printing commands, P1 and P2, will have no effect on your printer.

Page Breaks

As your printer prints out your document, AppleWorks counts the lines of typing. After a certain number of lines are printed (depending on the values of **Page Length**, **Top** and **Bottom Margins**, and **Lines per Inch**), AppleWorks automatically directs your printer to move to the top of the next piece of paper. Sometimes this break occurs at an inconvenient place in your document—in the middle of a paragraph or a table, for example. AppleWorks provides two ways of dealing with this problem.

NEW PAGE

The first is the New Page (NP) command. If you insert this command into your document, AppleWorks will tell your printer to begin a new page at this point. Let's see how this works.

When you printed out your "Formatted Memo," you saw that it was a two-page memo, and that page 2 began with instruction number 8. Suppose you wanted page 2 to begin with instruction number 5 instead of number 8. To do this, move your cursor to the "5" character in your memo, enter Printer Options (**-O**), type **NP**, press RETURN, and ESC. Now print out your memo again and see the difference (Figure 2-19). *Note:* I've indicated where page 1 ends on Figure 2-19 with a row of # characters.

GROUP BEGIN AND END

The second way AppleWorks controls page breaks is with the Group Begin (GB) and Group End (GE) commands. These two Printer Options allow you to indicate, in your document, the beginning and end of a block of text. If a page break would normally occur within the block, AppleWorks will automatically start a new page at the *beginning* of the block of text.

Before we try out this feature, you should delete the New Page marker you inserted above. Type **-Z** so that you can see the Printer Options in your memo. Move your cursor to the New Page indicator, type **-D**, and press RETURN.

Now, suppose you wanted to keep all eight items in your memo together on one page. What you would do is to indicate the beginning of a group of text lines at the start of item 1, and the end of the group at the line following the end of item 8. So, move your cursor to the "1" in item 1, enter Printer Options (**-O**), type **GB** (Group Begin), press RETURN, and ESC. Next, move your cursor to the blank line following

FIGURE 2—19

September 15

To: Bill
Chuck
Penney

From: Mike

Subject: On Site Service Charges

As you know, for the past three years, Hot & Cold Inc. has been charging the same rate for on site labor, $40.00 per hour. While most of our competitors have adopted higher prices for both parts and labor, we have tried to "hold the line" in spite of our increasing costs. Unfortunately, I find it necessary to raise our labor charge from $40.00 to $45.00 per hour, effective immediately.

I want to be sure that our service policies are understood by all H & C employees so we can avoid customer misunderstandings. Here are some guidelines which should help you answer any service charge questions your on site customer might have.

1. Labor is billed at $45.00 per hour. Time starts when the service technician arrives at the customer's location.

2. There is a minimum one hour labor charge. If the job takes more than one hour, then time is billed by the quarter hour, rounded up to the nearest quarter hour. In other words, if the job takes one hour and twenty minutes, the customer is charged for an hour and a half.

3. If the job requires two men, the labor charge per hour will double.

4. We will not use customer purchased parts in our repairs because we cannot guarantee their quality.

5. A seven per cent state sales tax will be added to the cost of all parts, but not to labor.

6. We will be happy to estimate the cost of any job. Estimates are billed at a flat one hour charge, $45.00. If the customer elects to have us do the work, the $45.00 charge will be applied toward his final bill.

7. Payment is due upon completion of work unless the customer has an open account with us.

8. H & C guarantees its work, parts and labor, for a period of 90 days.

If we all understand and follow the above guidelines, there will be less chance for customer confusion. Keep this memo with you and feel free to show it to your customers, should there be any questions.

item 8, enter Printer Options, type **GE** (Group End), press RETURN, and ESC. Print out your memo and see where the page break occurs now (Figure 2-20).

Automatic Page Numbering

AppleWorks will automatically number your pages for you, either at the top of each page or at the bottom. You can also control whether the page number appears on the first page or begins on the second page with "page 2." Your page numbers don't even have to start with "1". You can start numbering at any value.

PAGE HEADER

Setting up your document for page numbering involves the use of the Page Header (HE) or Page Footer (FO) commands. The two commands operate almost the same way. The Page Header (or Page Footer) command repeats the line *immediately below* the command in your document at the top (or bottom) of every page, when you print out the document.

Let's demonstrate this feature. Type **-1** to move your cursor to the top of your memo. Enter Printer Options (**-O**) and type **HE** to set a Page Header, press RETURN, and ESC. Hit the RETURN key once and the up-arrow key so that your cursor is on a blank line just under the Page Header indicator. Anything you type on this line will be used as the page header and will be the first line typed on every page in your document. Type **This is the header**. (Don't worry if this line is affected by the **Centered** justify command that you inserted for your date line, earlier. See Figure 2-21.) Now, print out your memo and look at the top of *both* pages. The line "This is the header" is at the top of both pages and is followed by two blank lines (AppleWorks automatically inserts two blank lines following the header).

Suppose you didn't want the header to be printed on the first page, but you wanted it on all the remaining pages of your document. The trick here is *where* in your document you place the Page Header. You placed the header at the very top of your memo. Suppose you move it between the first and second paragraphs of the memo. To do this, place your cursor on the beginning of the Page Header Line. Type **-M** and press the RETURN key to accept the **Within document** option. Press the down-arrow key twice and the left-arrow key once, to highlight the Page Header Line *and* the line below it, and press RETURN. Move the

FIGURE 2—20

September 15

To: Bill
Chuck
Penney

From: Mike

Subject: On Site Service Charges

As you know, for the past three years, Hot & Cold Inc. has been charging the same rate for on site labor, $40.00 per hour. While most of our competitors have adopted higher prices for both parts and labor, we have tried to "hold the line" in spite of our increasing costs. Unfortunately, I find it necessary to raise our labor charge from $40.00 to $45.00 per hour, effective immediately.

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2. There is a minimum one hour labor charge. If the job takes more than one hour, then time is billed by the quarter hour, rounded up to the nearest quarter hour. In other words, if the job takes one hour and twenty minutes, the customer is charged for an hour and a half.

3. If the job requires two men, the labor charge per hour will double.

4. We will not use customer purchased parts in our repairs because we cannot guarantee their quality.

5. A seven per cent state sales tax will be added to the cost of all parts, but not to labor.

6. We will be happy to estimate the cost of any job. Estimates are billed at a flat one hour charge, $45.00. If the customer elects to have us do the work, the $45.00 charge will be applied toward his final bill.

7. Payment is due upon completion of work unless the customer has an open account with us.

8. H & C guarantees its work, parts and labor, for a period of 90 days.

If we all understand and follow the above guidelines, there will be less chance for customer confusion. Keep this memo with you and feel free to show it to your customers, should there be any questions.

FIGURE 2—21

```
File: Formatted Memo          REVIEW/ADD/CHANGE          Escape: Main Menu
=====|====|====|====|====|====|====|====|====|====|====|====|====|====|===
--------Page Header
                    This is the header
                       September 15


To:       Bill
          Chuck
          Penney

From:     Mike

Subject:  On Site Service Charges

As you know, for the past three years, Hot & Cold Inc. has
been charging the same rate for on site labor, $40.00 per
hour. While most of our competitors have adopted higher
prices for both parts and labor, we have tried to "hold the
line" in spite of our increasing costs. Unfortunately, I
find it necessary to raise our labor charge from $40.00 to
-------------------------------------------------------------------------
Type entry or use @ commands          Line 3  Column 40      @-? for Help
```

cursor to the line between the first and second paragraphs, and press RETURN again. The two lines, the Page Header indicator and the "This is the header" line, should have moved to the space between the first and second paragraphs of the memo (Figure 2-22). Print out the memo again and see that the header skipped page 1 but appears on page 2.

PAGE FOOTER

The Page Footer command works the same way. The only difference is that if you want the footer to skip page 1, insert it in your document after the end of page 1. (*Note:* You can use ⌘ -K to show where the page breaks occur and insert the footer after the page break for page 1.)

PRINTING PAGE NUMBERS IN THE HEADER OR FOOTER

What has all this to do with automatic page numbering? One of the Printer Options is **Print Page No.** (PP), and, if you insert this command on the line following either the Page Header or the Page Footer, your pages will be numbered automatically.

Let's delete the Page Header from your document and work with the Page Footer. Move your cursor to the beginning of the Page Header Line and type ⌘ **-D**. Press the down-arrow key twice and the left-arrow key once to highlight the two lines you wish to delete, and press RETURN.

Leave the cursor where it is, on the blank line between the first and second paragraphs, and enter Printer Options (⌘ **-O**). Type **FO** and

FIGURE 2—22

```
File: Formatted Memo          REVIEW/ADD/CHANGE          Escape: Main Menu
=====|====|====|====|====|====|====|====|====|====|====|====|====|====|===

From:     Mike

Subject:  On Site Service Charges

As you know, for the past three years, Hot & Cold Inc. has
been charging the same rate for on site labor, $40.00 per
hour. While most of our competitors have adopted higher
prices for both parts and labor, we have tried to "hold the
line" in spite of our increasing costs. Unfortunately, I
find it necessary to raise our labor charge from $40.00 to
$45.00 per hour, effective immediately.
--------Page Header
This is the header

I want to be sure that our service policies are understood
by all H & C employees so we can avoid customer
misunderstandings. Here are some guidelines which should
help you answer any service charge questions your on site
--------------------------------------------------------------------------------
Type entry or use @ commands          Line 22  Column 41      @-? for Help
```

RETURN to insert a Page Footer. Then type **PP**, press RETURN, and ESC. Now that you're back in your memo, press the RETURN key.

Do you see the caret symbol "^" on the line just below the Page Footer indicator? Move your cursor so that it "sits" on top of that caret, and look at the bottom line on your screen. In the middle of that line, where the Line/Column Indicator usually is, you'll see "Print Page No." (see Figure 2-23). AppleWorks represents the page number indicator (and several other special printer features) with a caret. If you move the cursor over the caret and watch the Line/Column Indicator on the bottom line, AppleWorks will tell you what that caret represents.

Let's "dress up" your page number indicator. With the insert cursor on top of the caret, press the space bar enough times to move the caret about halfway across the screen. Now, type a dash ("-") on either side of the caret (Figure 2-24). Print out your memo and you should see page numbers at the bottom of both pages.

CHOOSING A STARTING PAGE NUMBER

If you should ever want your page numbers to start with some number other than 1, you can use the **Page Number** (PN) Printer Option to select whatever starting value for page number you wish. Just be sure that your cursor is at the top of your document before you enter Printer Options to invoke the Page Number command. AppleWorks has to see the Page Number command *before* it sees the PP indicator in order for the Page Number command to have any effect.

FIGURE 2—23

```
File: Formatted Memo          REVIEW/ADD/CHANGE          Escape: Main Menu
=====|====|====|====|====|====|====|====|====|====|====|====|====|====|===

As you know, for the past three years, Hot & Cold Inc. has
been charging the same rate for on site labor, $40.00 per
hour. While most of our competitors have adopted higher
prices for both parts and labor, we have tried to "hold the
line" in spite of our increasing costs. Unfortunately, I
find it necessary to raise our labor charge from $40.00 to
$45.00 per hour, effective immediately.
--------Page Footer
^

I want to be sure that our service policies are understood
by all H & C employees so we can avoid customer
misunderstandings. Here are some guidelines which should
help you answer any service charge questions your on site
customer might have.

     1.   Labor is billed at $45.00 per hour. Time
          starts when the service technician arrives at
          the customer's location.
--------------------------------------------------------------------------------
Type entry or use @ commands          Print Page No.          @-? for Help
```

FIGURE 2—24

```
File: Formatted Memo          REVIEW/ADD/CHANGE          Escape: Main Menu
=====|====|====|====|====|====|====|====|====|====|====|====|====|====|===

As you know, for the past three years, Hot & Cold Inc. has
been charging the same rate for on site labor, $40.00 per
hour. While most of our competitors have adopted higher
prices for both parts and labor, we have tried to "hold the
line" in spite of our increasing costs. Unfortunately, I
find it necessary to raise our labor charge from $40.00 to
$45.00 per hour, effective immediately.
--------Page Footer
                              -^-

I want to be sure that our service policies are understood
by all H & C employees so we can avoid customer
misunderstandings. Here are some guidelines which should
help you answer any service charge questions your on site
customer might have.

     1.   Labor is billed at $45.00 per hour. Time
          starts when the service technician arrives at
          the customer's location.


--------------------------------------------------------------------------------
Type entry or use @ commands          Line 23  Column 33       @-? for Help
```

Print Enhancements

AppleWorks allows you to do some special kinds of printing: boldface, underlining, subscripting, and superscripting—providing your printer supports these features. All four features are selected the same way.

UNDERLINING

Suppose, for example, you wanted to underline the subject of your memo: "On Site Service Charges." To do this, first place your cursor on top of the "O" in "On." Enter Printer Options (-**O**), type **UB** for Underline Begin, press RETURN, and ESC. Next, move the cursor so that it sits on the space to the right of the "s" in "Charges." Again enter Printer Options, type **UE** for Underline End, press RETURN, and ESC. Note that AppleWorks indicates the beginning and ending of underlining with caret symbols. Again, if you run your cursor over the carets, you'll see what they represent on the bottom line of your screen (Figure 2-25). Now, print out your memo and see the effect.

There is an easier way to underline text in your document. Suppose you wanted to underline the next-to-the-last word in the memo, "any." The easy way to do this is to move the cursor on top of the "a" in "any" and type CONTROL-**L** (hold down the CONTROL key while you type an "L"). AppleWorks inserts a caret. Then, move the cursor so that it is just to the right of the last character you want to underline, the "y" in "any." You don't want the cursor to be on top of the "y," you want it, in this case, to be on the space between "any" and "questions." Again type CONTROL-**L**, and again AppleWorks inserts a caret. Print out the memo again.

FIGURE 2—25

```
File: Formatted Memo          REVIEW/ADD/CHANGE          Escape: Main Menu
=====|====|====|====|====|====|====|====|====|====|====|====|====|====|===
                          September 15

To:       Bill
          Chuck
          Penney

From:     Mike

Subject:  ^On Site Service Charges^

As you know, for the past three years, Hot & Cold Inc. has
been charging the same rate for on site labor, $40.00 per
hour. While most of our competitors have adopted higher
prices for both parts and labor, we have tried to "hold the
line" in spite of our increasing costs. Unfortunately, I
find it necessary to raise our labor charge from $40.00 to
$45.00 per hour, effective immediately.
--------Page Footer
                              -^-

--------------------------------------------------------------------------------
Type entry or use @ commands          Underline End          @-? for Help
```

This method of typing CONTROL-L at the beginning and ending of text you want to underline is much faster than entering Printer Options twice to type **UB** and **UE** and accomplishes exactly the same thing.

BOLDFACE PRINTING

The **Boldface** Printer Option works the same way that underlining works. You can either use BB (**Boldface Begin**) and BE (**Boldface End**) from Printer Options or you can type CONTROL-B at the beginning and ending of text you want to print boldface. As an example, let's print the word "three," in the first line of the first paragraph, in boldface. Move the cursor to the "t" in "three" and type CONTROL-**B**. Now move your cursor to the right of the word "three" and again type CONTROL-**B**. The first CONTROL-B begins boldface printing; the second one ends it.

If you forget to turn off boldface printing (or underlining), AppleWorks automatically turns off the option at the end of the paragraph. Print out your memo again to see the effect of boldface printing.

SUBSCRIPTING AND SUPERSCRIPTING

Subscripting and superscripting must be selected from Printer Options. Otherwise, they operate the same way as boldface and underlining. Your cursor is placed at the beginning of text to be sub- or superscripted. You enter Printer Options, select either +B for **Superscript Begin** or -B for **Subscript Begin**, press RETURN, and ESC. Then you move the cursor one character to the right of the end of the text you want sub- or superscripted, reenter Printer Options, type either +E for **Superscript End** or -E for **Subscript End**, press RETURN, and ESC. That's all there is to it. (*Note:* If you use tractor-feed paper and want to do subscripting or superscripting, you may have to use the pinch roller in addition to the tractors to ensure proper paper movement.)

More Options for the Find Command

Back in the section on editing, you learned how to use three of the options in the Find command. Here, you'll learn how to use the two remaining Find options, **Marker** and **Options for printer**.

SETTING MARKERS

The **Set a Marker** (SM) printer option allows you to insert numbered markers in your document. The markers are not printed and, in fact, don't even appear unless you use the Zoom command, ⌘-Z. They can only be used with the **Marker** option in the Find command.

To set a marker, move your cursor to the place in your document you wish to be able to find later. Enter Printer Options, type **SM**, and press RETURN. AppleWorks will ask you for a number for your marker. This can be any number between 1 and 254. Type the number, press RETURN, and ESC.

FINDING A MARKER

If you want to find the place in your text where you set a marker, type ⌘ **-1** to go to the top of your document. Then type ⌘ **-F** for Find. Press **M** for Marker, type the number of the marker, press RETURN, and AppleWorks will find the place in your text where that marker was inserted.

FINDING A PRINTER OPTION

You can also use the Find command to locate hidden printer options. Just type ⌘ **-F** and then **O** for Options for printer. AppleWorks will show you the Printer Options chart. Type the two-character code for the Printer Option you want AppleWorks to find, press RETURN, and AppleWorks will find that option.

Special Printer Commands

There are four special printer commands that you may find useful: Skip Lines (SK), Pause Each Page (PE), Pause Here (PH), and Enter Keyboard (EK).

SKIP LINES

The Skip Lines command allows you to leave a specified number of blank lines when you print your document. You might use this option if you wanted to leave space for a drawing to be inserted after you print. Suppose you measured the length of the drawing and found that it needed 3½ inches of space. With the standard line spacing of 6 lines per inch, that drawing would occupy the equivalent of 21 lines of text. You could then place your cursor at the point in your document where the drawing would be inserted, enter Printer Options, type **SK** and RETURN, type **21** in response to the prompt "Lines:", press RETURN, and ESC. When your document is printed, 21 lines will be left blank, starting at the marked point in your text.

PAUSE EACH PAGE

In Chapter 1, when you were configuring your printer for AppleWorks, do you remember that one of the questions you answered was, "Stop at the end of each page"? I suggested that if you planned to use tractor-feed paper, you should answer "No" to this question. While you may plan to use tractor-feed paper most of the time, you might occasionally want to use single sheets of paper. So that you don't have to go back to the printer configuration section and change the **Stop at the end of each page** option, the **Pause Each page** (PE) Printer Option lets you tell AppleWorks to stop printing at the end of each page and wait for you to press the space bar before it begins to print the next page.

If you use this Printer Option, your cursor should be at the top of your document so that the entire document is affected by the option.

PAUSE HERE

Suppose you were using a daisy wheel printer and you wanted to change the print wheel to a different style—italics, for example—in the middle of printing out your document. The **Pause Here** (PH) Printer Option lets you do this. You simply move your cursor to the place in the text where you want your printer to pause, enter Printer Options, type **PH**, RETURN, and ESC. When your printer reaches that place in the document, AppleWorks will tell it to stop and wait for you to press the space bar. You can use the **Pause Here** option as often as you like in a document.

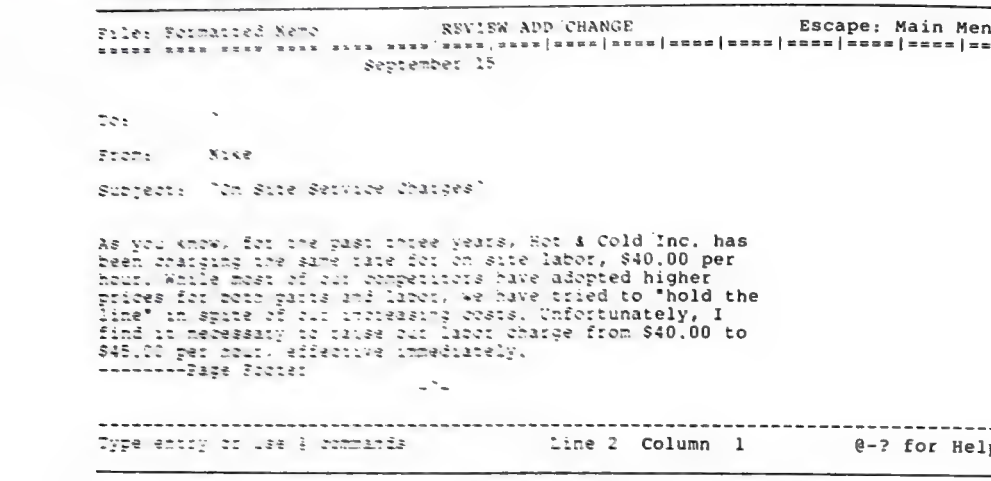
ENTER KEYBOARD

AppleWorks not only allows you to pause your printer and restart it, but it also will let you type in text while your printer waits for you. That's the function of the Enter Keyboard (EK) command.

Suppose you wanted to send your memo to each of the three service technicians in your company, Hot & Cold Inc., with just that person's name on the memo. One copy of the memo would say, "To: Bill"; another copy would say, "To: Chuck"; and so forth.

The Enter Keyboard command makes this kind of "personalizing" easy. First, you will replace the three names in your memo with an Enter Keyboard indicator. To do this, move your cursor so that it sits on the "B" in "Bill." Enter Printer Options, type **EK**, press RETURN, and ESC. You'll see a caret has been inserted to the left of "Bill." Next, without moving the cursor, type **-D**. Press the down-arrow key twice and the right-arrow key five times (this will highlight all three names). Press the RETURN key, and the three names will be deleted (see Figure 2-26).

FIGURE 2—26


File: Formatted Memo
REVIEW ADD CHANGE
Escape: Main Menu
September 15
To:
From: Mike
Subject: "On Site Service Charges"
As you know, for the past three years, Hot & Cold Inc. has
been charging the same rate for on site labor, $40.00 per
hour. While most of our competitors have adopted higher
prices for both parts and labor, we have tried to "hold the
line" in spite of our increasing costs. Unfortunately, I
find it necessary to raise our labor charge from $40.00 to
$45.00 per hour, effective immediately.
---------Page Footer
Type entry or use ⌘ commands
Line 2 Column 1
@-? for Help

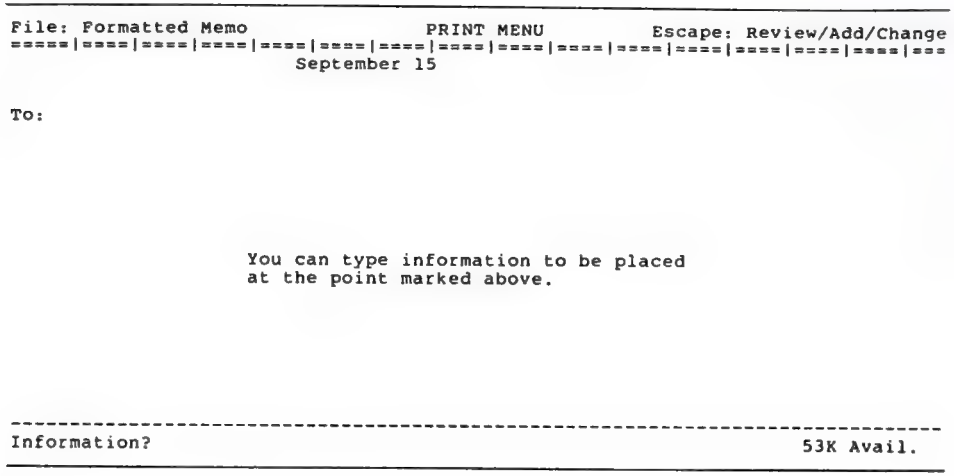
You can now print out three copies of the memo, inserting a different name each time. Type ⌘-P. Press RETURN to accept printing from the beginning of your memo. Select your printer from the list, and when you are asked "How many copies:", type **3** and press RETURN. As your printer starts to type the first copy of your memo, you will be prompted at the bottom of the screen for "Information" to be inserted in place of the Enter Keyboard caret (Figure 2-27). Type **Bill** and press RETURN. The first copy of the memo will be printed with Bill's name on it. You will then be prompted for the next name ("Chuck") to be inserted into the second copy of the memo, and so on.

You can use the Enter Keyboard command as many times as you like in the same document. AppleWorks will prompt you for each piece of information as the document is being printed.

The Sticky Space

Finally, there is the Sticky Space feature. Sticky Spaces are used in place of ordinary spaces when you want to prevent two (or more) words from being split at the end of a line. For example, suppose you were typing the name "Mr. Smith." in a letter. You wouldn't want to have "Mr." printed at the end of one line and "Smith" printed at the beginning of the next. So instead of typing an ordinary space between the period and the "S," you would hold down the OPEN-APPLE key while you

FIGURE 2—27



press the space bar (⌘-space bar). This results in a caret (representing the Sticky Space) showing up between the "." and the "S." Now, no matter how you move your text around, "Mr." and "Smith" will always be printed on the same line.

Final Comments

We've covered a lot of material in this chapter on word processing: commands, features, options, and the like. I hope you have been actually *doing* the exercises with the sample memo and not just reading the chapter and looking at the diagrams. Start using the word processor for your own letters and memos. You'll find that the more you use it, the easier it will be to use.

CHAPTER

3

THE DATA BASE

The Data Base section of AppleWorks is designed to help you enter, organize, and print out what are called *related sets of information.* For example:

1. An address book, which might contain the following information for every person listed in the book:
   first name
   last name
   street address
   city
   state
   zip code
   telephone number
2. A repair shop inventory list, which might contain the following information for each part:
   part number
   description
   manufacturer
   cost
   quantity on hand
   quantity on order
3. A repairman's time sheet, which might list the following data for each service call:
   repairman's name
   date of service call
   customer
   billed time
   hourly rate
   parts cost
   total charge to customer

Do you see what I mean about related sets of information? In all three examples, specific kinds of information are required for each entry. Anytime you have data organized in this fashion, you can use a data base to store them. You can arrange the data in any order you wish (for example, by zip code, in the case of the address book). And you can print out reports containing some or all of the data.

Data base users have special terms for talking about their data bases. Each type of information (first name, city, part number, hourly rate, etc.) is called a *field.* (In your AppleWorks manual, these fields are called *categories*; to avoid confusion, I'll use the term *category* from now on.)

One set of data for these categories—in the address book example, an entry for first name, last name, street address, and so on—is called a *record*. And if you lump together all of these records of the same type, you have a *file*.

In this chapter, you will create two different data base files, arrange the records in a useful, logical order (data base users call this *sorting* the file), and print out two different types of reports.

I. EXAMPLE 1: THE CUSTOMER LIST

Our first data base file will be a list of customers for a company called "Hot & Cold Inc.," a heating and air-conditioning company.

Creating the File

Boot up AppleWorks and from the Main Menu, select option 1, **Add files to the Desktop**. Next, choose option 4, **Make a new file for the Data Base**. The Data Base folder will ask you where this new file is coming from. Choose option 1, **From scratch**, and when you're prompted, "Type a name for this new file:", type **Customer List** and press RETURN.

You should now be looking at the Change Name/Category screen (Figure 3-1). AppleWorks has chosen the first category name for you,

FIGURE 3—1

```
File: Customer List          CHANGE NAME/CATEGORY    Escape: Review/Add/Change


Category names
================================================================================
Category 1                                  |
                                            | Options:
                                            |
                                            | Change category name
                                            | Up arrow   Go to filename
                                            | Down arrow Go to next category
                                            | @-I        Insert new category
                                            |
                                            |
                                            |
                                            |
                                            |
                                            |
--------------------------------------------------------------------------------
Type entry or use @ commands                                        55K Avail.
```

called "Category 1." Let's delete "Category 1" and replace it with the first category name in your file. Type CONTROL-**Y** (hold down the CONTROL key while your type a "Y") to erase "Category 1." Table 3-1 is a list of the seven category names you will use for this file. Type in the seven category names. Press the RETURN key after each name, including the last one, so that each name is on its own line (Figure 3-2). And that's all there is to creating a Data Base file in AppleWorks.

Before we go on, though, I'd like to say a few words about planning your data base files. When you're creating your own data base files, it's a very good idea to stop and think about the information you want your file to contain. AppleWorks will allow up to 30 categories per record, so make

TABLE 3—1

Category Names
Customer Name
Address
City
State
Zip
Phone
Acct. No.

FIGURE 3—2

```
File: Customer List          CHANGE NAME/CATEGORY    Escape: Review/Add/Change


Category names
================================================================================
Customer Name                          |
Address                                | Options:
City                                   |
State                                  | Type category name
Zip                                    | Up arrow   Go to previous category
Phone                                  |
Acct. No.                              |
                                       |
                                       |
                                       |
                                       |
                                       |
                                       |
                                       |
--------------------------------------------------------------------------------
Type entry or use @ commands                                        55K Avail.
```

sure you've thought of all the things you want each record to contain. While it is possible to add new categories later on, it's an awkward process.

If you need more than 30 categories, you may have to look for a different data base program. Before you do, see if there isn't a way to merge two or more categories into one. In this "Customer List" file, for example, you have separate categories for city, state, and zip. I set up the file this way because you might want to sort the records in the file according to their zip codes. To do this, you would need to have the zip code information by itself, in its own category. But if you never intended to sort the file by zip code, you could have included city, state, and zip all in one category.

As I mentioned earlier in Chapter 1, AppleWorks holds all your data in your Apple's internal memory. Most other data base programs keep all the file's data stored on disk so that every time you want to look at a different record, the program has to go out to the disk and copy the record into the computer. The advantage of a memory-based data base program like AppleWorks is that searching a file for particular information or sorting a file takes practically no time. Appleworks can put a file of 500 records in numerical order by zip code, for example, in less than 10 seconds. That same sorting process done by a disk-based data base program might take 15 minutes or more.

The disadvantage of a memory-based program is that the maximum size of a file, which means the maximum number of records in the file, is limited by the amount of available internal memory. Disk-based programs are limited by the amount of storage space available on a disk. Since AppleWorks is memory-based, there is a limit to the number of records you can type into your file. This limit is not a fixed number. It depends on the average amount of information typed in per record. The larger the average record size, the fewer records your file can hold. AppleWorks keeps track of the size of your file and continually tells you how much of its memory is available for more records.

Here is a guideline that will help you decide whether your data base application will fit in one AppleWorks file. If you type in about 75 characters per record, AppleWorks will have room for about 750 records. (*Note:* This assumes that your Apple computer has 128K of internal memory. If yours is a 64K Apple][+ or //e, AppleWorks will only have room for about 140 records.)

This means that if, for example, you have a mailing list of 12,000 names and you want to put them all in a single data base file, AppleWorks is the *wrong* program to use. If, however, you're willing to split your information into several parts, each of which is small enough for AppleWorks to handle, AppleWorks is an excellent choice.

Entering Records to a New File

If you look at the upper right-hand corner of the screen (Figure 3-2), you'll see that pressing the ESC key will take you to Review/Add/Change. The Data Base portion of AppleWorks consists of two parts: the data entry part and the report generator. In Review/Add/Change (the data entry part), you will be able to add new records and review and change old, previously entered records. Press ESC and look at Figure 3-3.

AppleWorks is letting you know that this is a new file without any records in it. Down in the lower right-hand corner you are told how much memory AppleWorks has available for your data base file. Press the space bar and you will see the Insert New Records screen (Figure 3-4).

AppleWorks has taken the seven category names you typed in earlier and arranged them, one under the other. This is AppleWorks' default Insert New Records screen, and in a moment you'll see how to set up the Insert New Records screen the way you want it to look. Notice that AppleWorks has added a colon (":") after each category name and has placed a dash ("-") as a default entry in each category. The dash is what AppleWorks has chosen to be the *Standard Value* for all categories. The Standard Value is what would be left as data for a category if you were just to press the RETURN key, without typing any data. Later on you'll see how to change the Standard Value for any category.

Let's enter a few records. You can make up data to type into this sample file, but if you'd rather not be bothered thinking up your own,

FIGURE 3—3

```
File: Customer List          REVIEW/ADD/CHANGE          Escape: Main Menu

================================================================================

              This file does not yet contain
              any information.  Therefore, you
              will automatically go into the
              Insert New Records feature.

--------------------------------------------------------------------------------
Press Space Bar to continue                                          55K Avail.
```

FIGURE 3—4

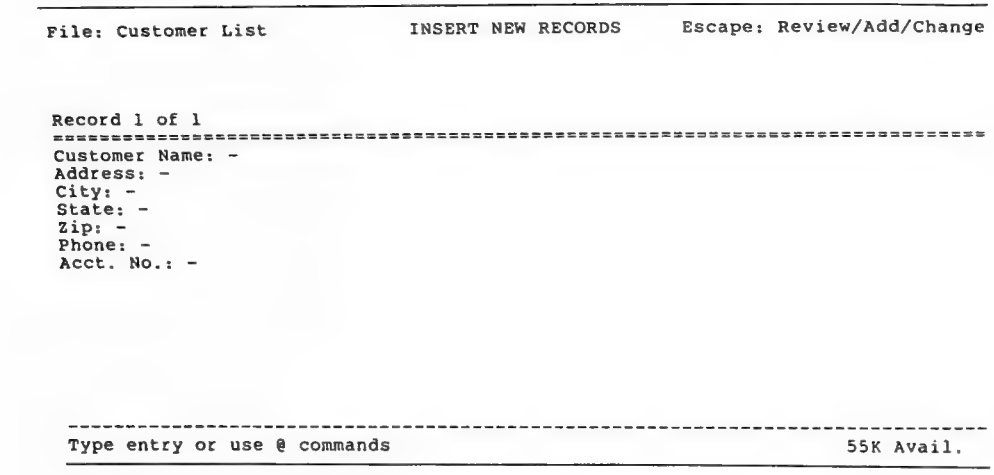


Table 3-2 has some sample records for you to use. As you finish typing the seventh category of the first record, the data you typed will be moved off the screen and a new, blank record will be displayed.

Just above the double line on the screen is the record counter. It tells you how many records there are in the file and which one you are currently looking at. While you were typing the first record, the record counter indicated, "Record 1 of 1." After you finished the first record and went on to the second, the record counter changed to "Record 2 of 2." Right now, each new record is being added to the end of your file. Later you will see how to insert new records at any point in your file, not just at the end.

Finish typing the second record. Your record counter should have just changed to, "Record 3 of 3." Before you start typing the third record, press ESC. This takes you out of the Insert New Records mode and puts you into

TABLE 3—2

Customer Name	Address	City	State	Zip	Phone	Acct. No.
Mr. & Mrs. Rob Smith	1423 First Ave.	Meadowbrook	IL	60099	555-3562	84-104
Mr. Steve Miller	573 W. Elm St.	Meadowbrook	IL	60099	555-6342	83-282
Ms. Gail Dooley	512 E. Main St.	East Meadowbrook	IL	60098	555-8211	85-103
Ms. D. McMullen	1615 Ninth Ave.	Bayshore	IL	60990	555-0593	84-220
Mr. & Mrs. Terry Dethloff	R.R. 1	Farmtown	IL	60095	555-3961	84-109

one of the two record display formats of the Review/Add/Change screen: the *multiple record format* (Figure 3-5). This format shows you the first five categories of both of the records you typed in.

Moving around Your File

As you can see, there is space on the screen to display up to 15 records, and when your file contains more than 15 records, you can scroll through the file in several different ways.

USING THE ARROW KEYS

The up- and down-arrow keys can be used to move the cursor up and down, one record at a time. If you hold down the OPEN-APPLE key as you press either the up-arrow or down-arrow keys, your cursor will move up or down one whole screen (15 records) at a time.

USING ⌘-1 THROUGH ⌘-9

You can also use ⌘-1 through ⌘-9. They work the same way they did in the Word Processor section of AppleWorks. ⌘-1 moves your cursor to the first record in your file, ⌘-9 to the last record, ⌘-5 to the middle record, and so on. I know these cursor movement commands aren't very

FIGURE 3—5

```
File: Customer List              REVIEW/ADD/CHANGE              Escape: Main Menu

Selection: All records

Customer Name    Address          City             State          Zip
================================================================================
Mr. & Mrs. Rob   1423 First Ave.  Meadowbrook      IL             60099
Mr. Steve Mille 573 W. Elm St.   Meadowbrook      IL             60099

--------------------------------------------------------------------------------
Type entry or use @ commands                                      @-? for Help
```

useful with only two records in your file, but as your file grows larger, you'll appreciate being able to move around your file quickly.

The Zoom Command

The second display format (the multiple record format was the first) is called the *single record format*. It displays *all* the information in a single record. Your cursor is probably on the first record; if it isn't, move it there. Now type **-Z**, the Zoom command. This command lets you zoom in on whichever single record your cursor was pointing to (Figure 3-6). If you press **-Z** again, you'll zoom back out to the multiple record format (Figure 3-5).

The Help Screen

On the bottom line of the screen, in either display format, you'll see that there is a Help screen available when you want it. Pressing **-?** will display the Help screen (Figure 3-7), a summary of all the commands that are effective at this point in the AppleWorks program. The up- and down-arrow keys will allow you to scroll through the command listing. You press ESC to return to the Review/Add/Change screen.

FIGURE 3—6

```
File: Customer List          REVIEW/ADD/CHANGE          Escape: Main Menu

Selection: All records


Record 1 of 2
================================================================================
Customer Name: Mr. & Mrs. Rob Smith
Address: 1423 First Ave.
City: Meadowbrook
State: IL
Zip: 60099
Phone: 555-3562
Acct. No.: 84-104




--------------------------------------------------------------------------------
Type entry or use @ commands                                    @-? for Help
```

FIGURE 3—7

```
File: Customer List                    HELP          Escape: Review/Add/Change


================================================================================
                    @-A   Arrange (sort) on this category

                    @-C   Copy records (includes cut and paste)

                    @-D   Delete records

                    @-F   Find all records that contain.....

                    @-I   Insert new records before the
                          current record

                    @-L   Change record layout

                    @-M   Move records (cut and paste)

--------------------------------------------------------------------------------
Use arrows to see remainder of Help                                  55K Avail.
```

Changing Record Layouts

Now I'd like you to practice changing the layout of both record format displays, single and multiple.

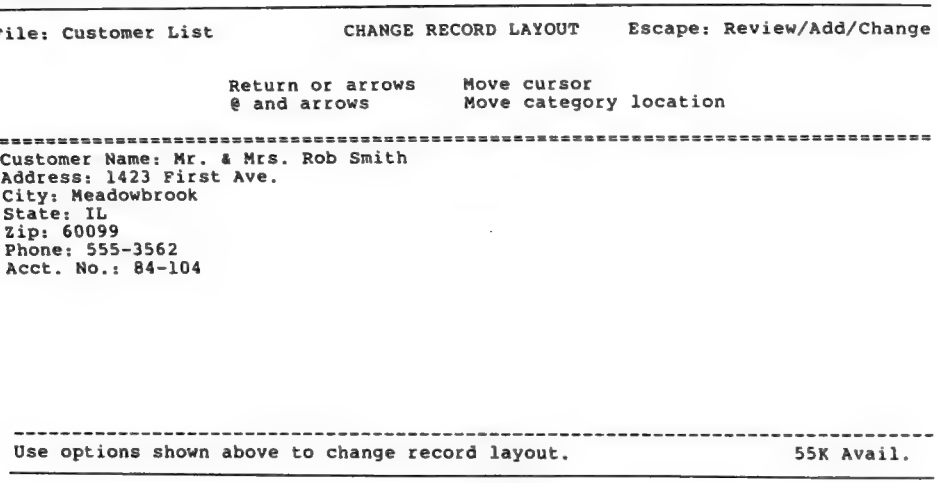
CHANGING THE SINGLE RECORD FORMAT

Let's start by changing the single record format display. The arrangement of the categories on the screen is called the *layout*. When you change the layout of the single record format, you will also change the layout of the Insert New Records screen. You'll remember that AppleWorks chose a default layout for this screen. You're about to change it.

Zoom in (⌘ -Z) to the single record format and type the Change Record Layout command, ⌘ -L (Figure 3-8). The only keys that have any effect in changing the record layout are the arrow keys, used either by themselves or with the OPEN-APPLE key. You're going to move the categories around the screen to improve the "look" of the single record format screen.

Those seven categories can be moved anywhere on the screen by placing the cursor on the first letter of the category name and then holding the OPEN-APPLE key down while you press the arrow keys. The category will be moved in the direction of the arrow—up, down, left, or right. The only move you can't make is to move one category "through" another. If a category lies between the one you want to move and the place you want to move it, you'll have to move your category around the one that's in the way. Let's try it.

FIGURE 3—8



Place your cursor on the "A" in "Acct. No." Hold down the OPEN-APPLE key and press the down-arrow key a few times. Try the other arrow keys while you're still holding down the OPEN-APPLE key. Fun, isn't it? When you want to leave a category in a particular spot, let up on the OPEN-APPLE key and move the cursor elsewhere.

I suggested that you start with the "Acct. No." category because the remaining six categories could not be moved vertically since other categories were in the way. It's generally a good idea to start moving the bottom category first, then the next-to-the-bottom, and so forth.

Look at Figure 3-9 and move your categories around until your screen resembles it. When it does, press the ESC key and you'll be back at the Review/Add/Change single record format display.

CHANGING THE MULTIPLE RECORD DISPLAY

You can also change the layout of the multiple record display. Zoom out (⌘ -Z) and press ⌘ -L again (Figure 3-10). Press the right-arrow key once, by itself. Each time you press either the left- or right-arrow keys the cursor will move one category to the left or right. Press the right-arrow key a few more times. See, the "Phone" and "Acct. No." categories weren't thrown away. There just wasn't room on the 80-column screen to display them. With the multiple record layout, you can decide *which* categories will be displayed, their *order* left to right, and *how wide* each displayed category will be.

FIGURE 3—9

```
Figure 3-9

File: Customer List            CHANGE RECORD LAYOUT    Escape: Review/Add/Change

                    Return or arrows    Move cursor
                    @ and arrows        Move category location

================================================================================
Customer Name: Mr. & Mrs. Rob Smith

Address: 1423 First Ave.

City: Meadowbrook                       State: IL        Zip: 60099

Phone: 555-3562                         Acct. No.: 84-104



--------------------------------------------------------------------------------
Use options shown above to change record layout.                      55K Avail.
```

FIGURE 3—10

```
File: Customer List            CHANGE RECORD LAYOUT    Escape: Review/Add/Change



================================================================================

                    --> or <--  Move cursor
                     >  @  <    Switch category positions
                    --> @ <--   Change column width
                    @-D         Delete this category
                    @-I         Insert a previously deleted category

--------------------------------------------------------------------------------

Customer Name   Address         City            State           Zip
--------------- --------------  --------------- --------------- ---------------
Mr. & Mrs. Rob  1423 First Ave. Meadowbrook     IL              60099
Mr. Steve Mille 573 W. Elm St.  Meadowbrook     IL              60099

-------------------------------------------------------------------- More --->
Use options shown above to change record layout.                      55K Avail.
```

Suppose you wanted the multiple record format to display the following categories: "Acct. No.," "Customer Name," "Address," "City," and "Phone," in that order.

The first thing you would want to do is to delete the two categories you didn't want to display: "State" and "Zip." Don't worry. You're not throwing away any data. You're just altering the way the data are being displayed. Move your cursor to the "State" category and type ⌘ **-D** to delete it. Your cursor will now be on the "Zip" category, so type ⌘ **-D** again to delete it, too.

In order to move the "Acct. No." category from its place at the far right to the left-most position, you have to delete it first. So, move your cursor to "Acct. No.," and type ⌘ **-D** once more. Now move your cursor to the "Customer Name" category. This is where you want to insert "Acct. No." Type ⌘ **-I** (to insert a deleted category), and you'll see a list of the three categories you've just deleted. Select "Acct. No." (it should be choice 3) by typing **3** and RETURN.

Now that you've got your choice of categories in the order you want, you can control how wide each category will be by moving your cursor to the category and pressing either ⌘ -left-arrow to shorten it or ⌘ -right-arrow to widen it. Look at Figure 3-11 and adjust your category widths so that they look something like the figure.

When you're finished adjusting the widths of the categories, press the ESC key, and AppleWorks will ask you which direction you want the

FIGURE 3—11

```
File: Customer List          CHANGE RECORD LAYOUT    Escape: Review/Add/Change


================================================================================

                    -->or<--  Move cursor
                    >  @  <   Switch category positions
                    -->@ <--  Change column width
                    @-D       Delete this category
                    @-I       Insert a previously deleted category

--------------------------------------------------------------------------------

Acct.  Customer Name            Address                City         Phone
------ -------- ---------------- ---------------------- ------- ---- --------
84-104 Mr. & Mrs. Rob Smith     1423 First Ave.        Meadowbrook  555-3562
83-282 Mr. Steve Miller         573 W. Elm St.         Meadowbrook  555-6342

-------------------------------------------------------------------- More -->
Use options shown above to change record layout.                  55K Avail.
```

cursor to move (in the multiple record format display) when you press the RETURN key. Press RETURN to accept choice 1, **Down (standard)**, and you'll be back at the multiple record display with your new layout.

Setting Standard Values:

You're going to type in the remaining three records (and as many others as you like) in a moment, but before you do, did you notice that all the customers listed in Table 3-2 live in Illinois? This value for the "State" category never changes; at least it doesn't in the five sample records. Why don't you let AppleWorks supply this constant value instead of typing it yourself for each record?

Type ⌘-**V** to access Set Standard Values (Figure 3-12). The up- or down-arrow key will move your cursor to the "State" category. Type **IL** and press RETURN. Now ESC back to Review/Add/Change. It doesn't look as if anything has been accomplished, but wait until you enter the remaining records.

Inserting New Records

Type ⌘-**I** and enter the remaining three records. Notice that AppleWorks now supplies the name of the state automatically. When

FIGURE 3—12

```
File: Customer List          SET STANDARD VALUES     Escape: Review/Add/Change


Record
================================================================================

Customer Name: -

Address: -

City: -                              State: -          Zip: -

Phone: -                             Acct. No.: -


--------------------------------------------------------------------------------
Type standard category values                                        53K Avail.
```

you reach the "State" category, you can accept the standard value "IL" by pressing the RETURN key. Or you can substitute a different state by changing to the overstrike cursor (◆ -E) and typing over the standard value.

When you've finished typing the last record (and have gone on to the next blank record), press ESC to leave Insert New Records and return to Review/Add/Change (Figure 3-13). Note that your new records were inserted *above* the first two records. New records are inserted above the record your cursor was sitting on when you typed ◆ -I. Because you can arrange your records in any order you like, the order in which you enter them doesn't matter.

Arranging (Sorting) Your Records

AppleWorks allows you to arrange your records in ascending or descending order using any category. For example, let's arrange the records in alphabetical order according to city. First, you have to move the cursor to the "City" column. Don't try to use the arrow keys to move the cursor. They won't move the cursor to a different column. Pressing the TAB key moves the cursor one column to the right, as long as the cursor was sitting on the *first character* of the entry. (◆ -TAB moves the cursor one column to the left.) Use the TAB key to move the cursor

FIGURE 3—13

```
File: Customer List          REVIEW/ADD/CHANGE          Escape: Main Menu


Acct.  Customer Name              Address              City          Phone
=============================================================================
85-103 Ms. Gail Dooley            512 E. Main St.      East Meadowb  555-8211
84-220 Ms. D. McMullen            1615 Ninth Ave.      Bayshore      555-0593
84-109 Mr. & Mrs. Terry Dethloff  R.R. 1               Farmtown      555-3961
84-104 Mr. & Mrs. Rob Smith       1423 First Ave.      Meadowbrook   555-3562
83-282 Mr. Steve Miller           573 W. Elm St.       Meadowbrook   555-6342


-----------------------------------------------------------------------------
Type entry or use @ commands                                  @-? for Help
```

to the "City" column and then type ⌘-A, the Arrange command (Figure 3-14).

You want a standard alphabetic sort, **From A to Z**, so type **1** and press RETURN. That's all there is to sorting a file. You can see the results of the sort in Figure 3-15.

FIGURE 3—14

```
File: Customer List              ARRANGE (SORT)        Escape: Review/Add/Change


================================================================================

                    This file will be arranged on
                    this category: City

                    Arrangement order:

                          1.  From A to Z
                          2.  From Z to A
                          3.  From 0 to 9
                          4.  From 9 to 0


--------------------------------------------------------------------------------
Type number, or use arrows, then press Return                        53K Avail.
```

Record Selection

Suppose you wanted to look at only those records whose "Acct. No." began with "84." AppleWorks has a special command called Record Selection that makes this easy. Type ⌘-**R** (Figure 3-16). You're looking at a list of your category names. Because you want to select records based on the data in their "Acct. No." category, type **7** and press RETURN.

AppleWorks has a number of ways to compare your choice of "84" with data in the "Acct. No." category, as you will see in Figure 3-17. Some of the comparisons (the first four) are mathematical comparisons. The others are used in comparing non-numerical data. You want to select those records with "Acct. No." beginning with "84," so your comparison choice is number 8, **begins with**. Press **8** and RETURN. AppleWorks then asks, "Type comparison information." Type **84** and press RETURN.

FIGURE 3—15

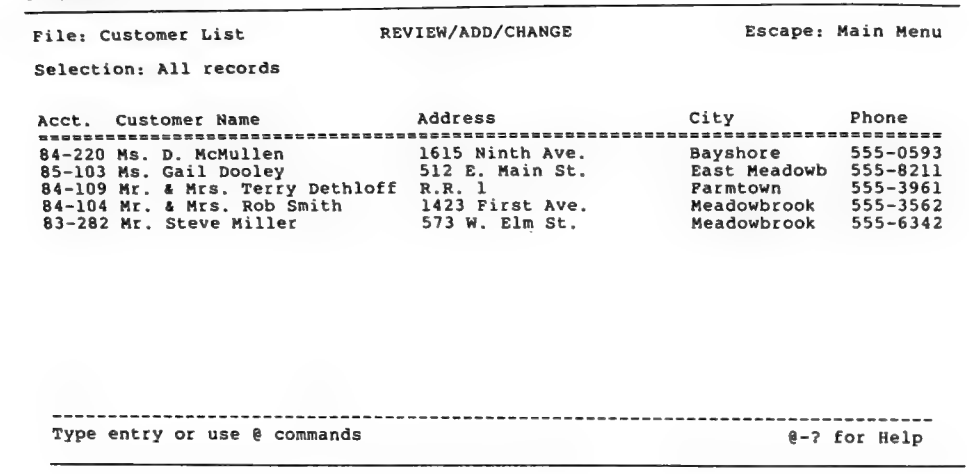


FIGURE 3—16

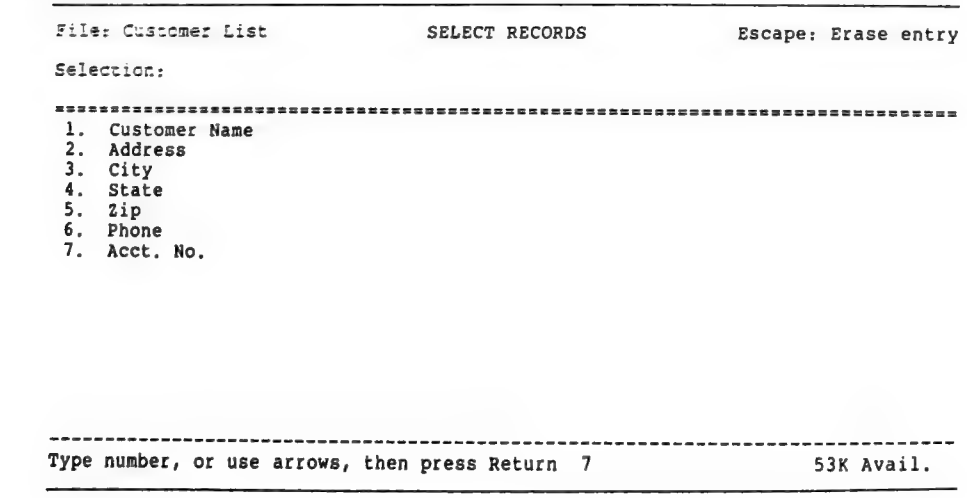


FIGURE 3—17

```
File: Customer List              SELECT RECORDS        Escape: Review/Add/Change
Selection: Acct. No.

================================================================================
 1.  equals
 2.  is greater than
 3.  is less than
 4.  is not equal to
 5.  is blank
 6.  is not blank
 7.  contains
 8.  begins with
 9.  ends with
10.  does not contain
11.  does not begin with
12.  does not end with

--------------------------------------------------------------------------------
Type number, or use arrows, then press Return                        53K Avail.
```

You are now given additional options that would allow you to select records based on more than one comparison. Because you've already set up the one comparison you wanted, press the ESC key to leave the Record Selection function.

As you can see, AppleWorks has selected and displayed only those records (three of them) with "Acct. No." data beginning with "84" (Figure 3-18). Note the Selection Line near the top of your screen. It indicates whether you have used the Record Selection function, and if so, what the Record Selection comparison is.

Suppose you want to display *all* the records again. No problem. Type **-R** again, and at the bottom of the screen you'll be asked, "Select all records?" Just press the "Y" key and AppleWorks displays all the records (Figure 3-15).

Deleting Records

Deleting records is even easier than deleting text was in the word processor. Just move the cursor to the record you want to delete, type **-D**, and press RETURN. If you want to delete more than one adjacent record, you can use the up- or down-arrow key to highlight the ones you want to delete, before you press the RETURN key. *Warning: Once you have deleted a record, it is gone forever.* So, if you press -D by mistake, you can avoid deleting any records by pressing ESC.

FIGURE 3—18

```
File: Customer List          REVIEW/ADD/CHANGE          Escape: Main Menu

Selection: Acct. No. begins with 84

Acct.  Customer Name              Address              City          Phone
=============================================================================
84-220 Ms. D. McMullen            1615 Ninth Ave.      Bayshore      555-0593
84-109 Mr. & Mrs. Terry Dethloff  R.R. 1               Farmtown      555-3961
84-104 Mr. & Mrs. Rob Smith       1423 First Ave.      Meadowbrook   555-3562

-----------------------------------------------------------------------------
Type entry or use @ commands                                  @-? for Help
```

Finding a Record

Suppose your file contained 500 records and you wanted to find one particular record. Suppose that all you remembered about the record was that the customer lived on Elm Street. The Find command was designed with just this situation in mind. Type ⌘ **-F** and you will be prompted to "Type comparison information:". Respond with **Elm** and press RETURN. AppleWorks displays the record (or records) that have the three letters "E-L-M" in *any* of their categories. So if one of the customers lived in the city of "Elmhurst" or one of the customers were named "Elmer" that record would be displayed also. *Note:* The case of the letters (whether the letters were capitalized or small) does not matter. Nor do the searched-for characters have to be at the beginning of the entry. Even if the entry containing the characters was not displayed on the multiple record screen, the record would still be found.

Pressing ESC returns you to Review/Add/Change.

Making Copies of Records

There may be times when you'll want to duplicate a record once or more. The Copy command, ⌘ -C, lets you do this automatically so that you don't have to type in the same record over and over. Let's try it.

COPYING A SINGLE RECORD

Move your cursor to the fourth record, the one with the "Customer Name" of "Mr. & Mrs. Rob Smith," and type ⌘-C. Press the RETURN key to accept the choice of **Current Record**. AppleWorks now asks you how many copies you want. Type **5** and press RETURN (Figure 3-19).

Now that you've made those five extra copies of the "Mr. & Mrs. Rob Smith" record, use the delete command (⌘-D) to remove them from your file.

COPYING MULTIPLE RECORDS

You can also duplicate several records at the same time using the same command, ⌘-C. Suppose you wanted to copy all five records in your file. Type ⌘ **-1** to move your cursor to the top of your file. Next, type ⌘ **-C**. But instead of accepting the choice of **Current Record**, press the letter "T" to select **To Clipboard (cut)** and don't press the RETURN key. Use the down-arrow key to highlight all five of your records and then press RETURN.

It looks as if nothing has happened, right? You have copied those five records to a place in your Apple's memory that AppleWorks calls the *Clipboard*. These records are there now and will remain there until you either put something else in the Clipboard (other records, for example) or quit AppleWorks. You can copy the records that are in the Clipboard back into your file as many times as you wish. Your cursor's location determines *where* in your file the copied records will be

FIGURE 3—19

```
File: Customer List            REVIEW/ADD/CHANGE          Escape: Main Menu

Selection: All records

Acct.  Customer Name              Address                 City          Phone
=============================================================================
84-220 Ms. D. McMullen            1615 Ninth Ave.         Bayshore      555-0593
85-103 Ms. Gail Dooley            512 E. Main St.         East Meadow   555-8211
84-109 Mr. & Mrs. Terry Dethloff  R.R. 1                  Farmtown      555-3961
84-104 Mr. & Mrs. Rob Smith       1423 First Ave.         Meadowbrook   555-3562
84-104 Mr. & Mrs. Rob Smith       1423 First Ave.         Meadowbrook   555-3562
84-104 Mr. & Mrs. Rob Smith       1423 First Ave.         Meadowbrook   555-3562
84-104 Mr. & Mrs. Rob Smith       1423 First Ave.         Meadowbrook   555-3562
84-104 Mr. & Mrs. Rob Smith       1423 First Ave.         Meadowbrook   555-3562
84-104 Mr. & Mrs. Rob Smith       1423 First Ave.         Meadowbrook   555-3562
83-282 Mr. Steve Miller           573 W. Elm St.          Meadowbrook   555-6342


-----------------------------------------------------------------------------
Type entry or use @ commands                                  @-? for Help
```

inserted. They will be inserted just *above* the record your cursor is sitting on. This means that you cannot Copy records to the end of your file.

Leave your cursor at the top of your file and type ⌘-**C** again. This time press the "F" key to select **From Clipboard (paste)**. AppleWorks immediately copies the records in the Clipboard to your file (Figure 3-20). You can transfer as many copies of the Clipboard records to your file as you want by repeatedly choosing the **From clipboard (paste)** option in the Copy command.

The Clipboard feature of AppleWorks has many uses, and I'll show you more of them in Chapter 5. But for now, let's go on. Use ⌘-**D** to delete all but the original five records.

FIGURE 3—20

```
File: Customer List          REVIEW/ADD/CHANGE          Escape: Main Menu

Selection: All records

Acct.  Customer Name              Address              City          Phone
==========================================================================
84-220 Ms. D. McMullen            1615 Ninth Ave.      Bayshore      555-0593
85-103 Ms. Gail Dooley            512 E. Main St.      East Meadow   555-8211
84-109 Mr. & Mrs. Terry Dethloff  R.R. 1               Farmtown      555-3961
84-104 Mr. & Mrs. Rob Smith       1423 First Ave.      Meadowbrook   555-3562
83-282 Mr. Steve Miller           573 W. Elm St.       Meadowbrook   555-6342
84-220 Ms. D. McMullen            1615 Ninth Ave.      Bayshore      555-0593
85-103 Ms. Gail Dooley            512 E. Main St.      East Meadow   555-8211
84-109 Mr. & Mrs. Terry Dethloff  R.R. 1               Farmtown      555-3961
84-104 Mr. & Mrs. Rob Smith       1423 First Ave.      Meadowbrook   555-3562
83-282 Mr. Steve Miller           573 W. Elm St.       Meadowbrook   555-6342


--------------------------------------------------------------------------
Type entry or use @ commands                                  @-? for Help
```

Moving Records in Your File

Suppose you wanted to move the fourth and fifth records in your file up to the top. The Move command, ⌘-M, does this. It works in much the same way as the Copy command works in that it uses the Clipboard to store the records that you want to move.

To move records four and five to the top of your file, place your cursor on record four, type ⌘-**M**, and press the "T" key, **To the Clipboard (cut)**. Press the down-arrow key once so that both the fourth and fifth records are highlighted, and then press RETURN. Both records

have disappeared from the screen, but don't worry, they're on the Clipboard. Now move your cursor to the top of your file, type ⌘-M, and press the "F" key, **From the Clipboard (paste)** (Figure 3-21). Presto!

Printing Mailing Labels

There are two kinds of report formats that AppleWorks can print out using your data base file. One of them is called a *Tables* report and prints out your records, one record per line, similar to the multiple record layout display. You'll use this kind of report with the second data base example in this chapter.

The second type of report is the *Labels* report, and it's the one you'll use with the "Customer List" file. Imagine that as the owner of Hot & Cold Inc. (the name of your company, remember?) you would like to send out a mailing to all of your customers announcing a special, pre-summer, air-conditioning "tune-up." You've made up a flyer and had it copied at the printer's. Now you're faced with having to address all of the flyers individually to your customers. Wouldn't it be nice if your computer could print out mailing labels and save you the time and trouble? That's what the Labels report format is designed to do.

By the way, don't worry if you haven't bought any tractor-feed labels yet. You can still do the exercise and use ordinary paper for the output. When you actually want to print labels, though, you must run

FIGURE 3—21

```
File: Customer List          REVIEW/ADD/CHANGE          Escape: Main Menu

Selection: All records

Acct.  Customer Name              Address              City          Phone
=============================================================================
84-104 Mr. & Mrs. Rob Smith       1423 First Ave.      Meadowbrook   555-3562
83-282 Mr. Steve Miller           573 W. Elm St.       Meadowbrook   555-6342
84-220 Ms. D. McMullen            1615 Ninth Ave.      Bayshore      555-0593
85-103 Ms. Gail Dooley            512 E. Main St.      East Meadow   555-8211
84-109 Mr. & Mrs. Terry Dethloff  R.R. 1               Farmtown      555-3961

-----------------------------------------------------------------------------
Type entry or use @ commands                                    @-? for Help
```

the labels through the tractor of your printer. Using the pinch-roller on the platen won't do because your labels will gradually slip out of alignment. The tractor ensures that your labels stay aligned.

Type ⌘ **-P** to go to the Report Menu (Figure 3-22).

CREATING A NEW LABELS REPORT

Select option 3, **Create a new "labels" format**, by typing **3** and pressing RETURN. Type **Mailing Labels** as the name for your report and press RETURN.

AppleWorks now shows you a standard Labels Report format (Figure 3-23). (Notice that you have a new Help screen available to you.) While there are seven categories listed, you won't need all seven for your mailing labels. I have in mind a four-line label. The first line would be the "Acct. No."; the second line, the "Customer Name." "Address" would go on the third line, and "City," "State," and "Zip" would make up line four.

This means that the first thing you should do is delete the "Phone" category from the Report format. Again, don't worry. You're not throwing away any data; you're just affecting how the data will be printed out. Place your cursor (use the down-arrow key) on the "P" in "Phone" and type ⌘ **-D** (don't press RETURN). The "Phone" category is erased; in its place is a blank line. If you accidentally erase a category and you want to put it back, use the Insert command, ⌘ -I.

Using the same technique you used when you changed the single record display format, move the "Zip" category down one line. (Remember, holding down the OPEN-APPLE key while you press one of the

FIGURE 3—22

```
File: Customer List                REPORT MENU          Escape: Review/Add/Change
Report: None

================================================================================

                    1.  Get a report format
                    2.  Create a new "tables"format
                    3.  Create a new "labels" format
                    4.  Duplicate an existing format
                    5.  Erase a format




--------------------------------------------------------------------------------
Type number, or use arrows, then press Return                        54K Avail.
```

FIGURE 3—23

```
File: Customer List                REPORT FORMAT              Escape: Report Menu
Report: Mailing Labels
Selection: All Records


================================================================================
Customer Name
Address
City
State
Zip
Phone
Acct. No.
------------------------Each record will print  7 lines-----------------------


--------------------------------------------------------------------------------
Use options shown on Help Screen                                    @-? for Help
```

arrow keys will move the category in the direction of the arrow on the key. In order for this to work, though, your cursor must be on the first letter of the category name.) Similarly, move the rest of the categories down one line so that there is a blank line at the top (Figure 3-24).

Drop your cursor down to "Acct. No." and, using a combination of OPEN-APPLE arrow keys, move "Acct. No." to the right, up to the top, and back left, so that it occupies the top line spot (Figure 3-25).

Your top three lines are just the way you want them. All you have to do is to move the "State" and "Zip" categories so that they are on the same line as "City." Go ahead and do that (Figure 3-26).

Now it's beginning to look like a mailing label. You have one more thing to change in the Report Format. When you buy tractor-feed labels, there is a fixed distance between the top of one label and the top of the next. Usually this distance, measured in lines, is 6 lines. Label sizes are sometimes measured by inches (1-inch labels, 1½-inch labels, and so forth). Recalling that your printer normally prints 6 lines to the inch, 1-inch labels are really 6-line labels, 1½-inch labels are really 9-line labels, etc.

Suppose you had 6-line labels. Do you see the dashed line on your screen that says, "Each record will print 7 lines"? In order that the four lines of your label will always be printed in the same place on each and every label, that dashed line's value *must* be the same as your label size.

FIGURE 3—24

```
File: Customer List                REPORT FORMAT              Escape: Report Menu
Report: Mailing Labels
Selection: All Records


================================================================================

Customer Name
Address
City
State
Zip
Acct. No.
------------------------Each record will print  7 lines-----------------------




--------------------------------------------------------------------------------
Use options shown on Help Screen                                      @-? for Help
```

FIGURE 3—25

```
File: Customer List                REPORT FORMAT              Escape: Report Menu
Report: Mailing Labels
Selection: All Records


================================================================================
Acct. No.
Customer Name
Address
City
State
Zip

------------------------Each record will print  7 lines-----------------------




--------------------------------------------------------------------------------
Use options shown on Help Screen                                      @-? for Help
```

With your 6-line labels, the dashed line has to read, "Each record will print 6 lines." To decrease the number of lines in your label, move your cursor to a blank line and type ⌘ -D. Do this enough times to get the dashed line value to 6 lines (Figure 3-27). If you need more lines for your label, press the RETURN key and keep pressing it until you get the number of lines you want.

FIGURE 3—26

```
File: Customer List              REPORT FORMAT              Escape: Report Menu
Report: Mailing Labels
Selection: All Records


================================================================================
Acct. No.
Customer Name
Address
City                        State       Zip

------------------------Each record will print  7 lines-------------------------




--------------------------------------------------------------------------------
Use options shown on Help Screen                                      @-? for Help
```

FIGURE 3—27

```
File: Customer List              REPORT FORMAT              Escape: Report Menu
Report: Mailing Labels
Selection: All Records


================================================================================
Acct. No.
Customer Name
Address
City                        State       Zip

------------------------Each record will print  6 lines-------------------------




--------------------------------------------------------------------------------
Use options shown on Help Screen                                      @-? for Help
```

FAMILIAR COMMANDS

Two of the commands you used in the Review/Add/Change section of the data base are available to you here, in the Report Format section, and the Help screen (⌘ -?) lists them. They are Arrange (⌘ -A) and Record Selection (⌘ -R).

Zoom (⌘ -Z) is also available, but it works a bit differently here. If you type ⌘ -Z, the category names in your Report Format will be

replaced with actual record entries. Try it (Figure 3-28). This is what the label will really look like when it is printed. You can look at other records as well. Pressing ⌘ - > (without pressing the SHIFT key) will show you the next record. And, ⌘ - < will display the previous record. You can also use ⌘ -1 through ⌘ -9 to move quickly through your file.

Pressing ⌘ -Z will switch the display back to category names, but, for the moment, leave the record entry displayed.

FIGURE 3—28

```
File: Customer List                REPORT FORMAT              Escape: Report Menu
Report: Mailing Labels
Selection: All Records


================================================================================
84-104
Mr. & Mrs. Rob Smith
1423 First Ave.
Meadowbrook                IL          60099

-----------------------Each record will print  6 lines-----------------------



--------------------------------------------------------------------------------
Use options shown on Help Screen                                  ⌘-? for Help
```

PRINTING BOTH CATEGORY NAME AND ENTRY

Suppose you wanted the category name, "Acct. No.," to be printed on the label in front of the entry value. You can do this with the Print Category Name and Entry command, ⌘ -V. Move your cursor to the first character of the "Acct. No." entry (the number 8) on the top line and type ⌘ **-V** (Figure 3-29). Now every label will show the category name, "Acct. No." next to the number itself.

PRINTER OPTIONS

The Data Base section of AppleWorks has a Printer Options page, similar to the Printer Options page in the word processor. Type ⌘ **-O** and let's take a look at it (Figure 3-30).

The first four options, grouped under **Left and right margins**, can be pretty much left alone. The only change you may want to make is to

FIGURE 3—29

```
File: Customer List                REPORT FORMAT              Escape: Report Menu
Report: Mailing Labels
Selection: All Records


================================================================================
Acct. No: 84-104
Mr. & Mrs. Rob Smith
1423 First Ave.
Meadowbrook                IL          60099

------------------------Each record will print  6 lines-------------------------




--------------------------------------------------------------------------------
Use options shown on Help Screen                                    @-? for Help
```

FIGURE 3—30

```
File: Customer List              PRINTER OPTIONS          Escape: Report Format
Report: Mailing Labels
================================================================================

-------Left and right margins--------      ------Top and bottom margins-------
PW: Platen Width          8.0 inches       PL: Paper Length         11.0 inches
LM: Left Margin           0.0 inches       TM: Top Margin            0.0 inches
RM: Right Margin          0.0 inches       BM: Bottom Margin         0.0 inches
CI: Chars per Inch        10               LI: Lines per Inch        6

    Line width            8.0 inches           Printing length      11.0 inches
    Char per line (est)   80                   Lines per page       66

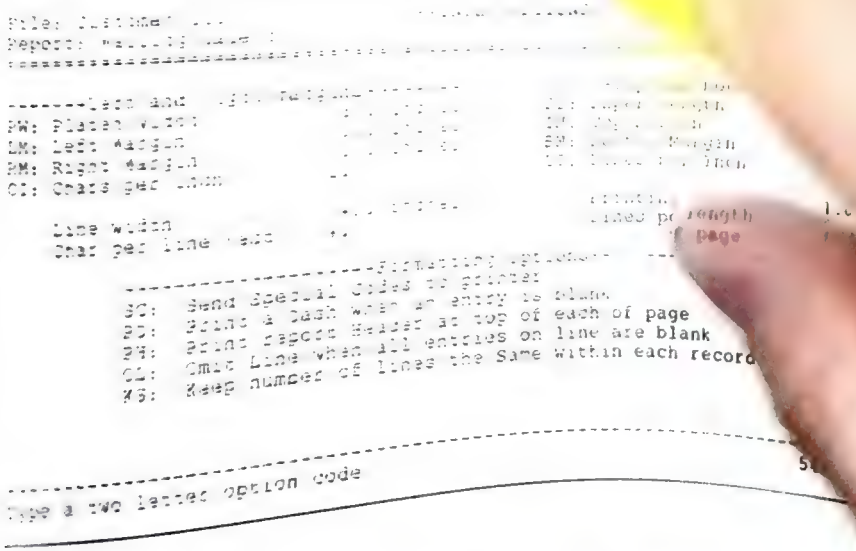
          --------------------Formatting options----------------------
          SC:  Send Special Codes to printer                        No
          PD:  Print a Dash when an entry is blank                  No
          PH:  Print report Header at top of each of page           Yes
          OL:  Omit Line when all entries on line are blank         Yes
          KS:  Keep number of lines the Same within each record     Yes


--------------------------------------------------------------------------------
Type a two letter option code                                       54K Avail.
```

change the right margin to 4.0 inches (because your labels aren't 8 inches wide). To change any of the first four options (or the next four, grouped under **Top and bottom margins**, for that matter), you type the two-letter code that's to the left of the option and press RETURN. Then you type the new value you want and press RETURN. So, to change the right margin to 4.0 inches, type **RM**, RETURN, **4**, and RETURN.

PRINTING LABELS TO THE SCREEN

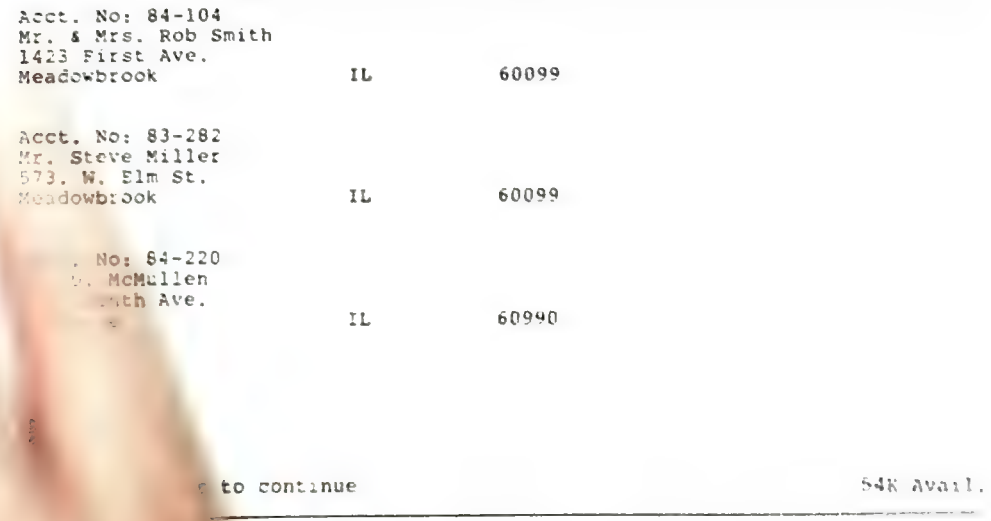
FIGURE 3—



labels. Find the one that says, "The screen," choose it, and press RETURN. Your screen should look like Figure 3-32. Press the space bar to see the rest of your records. (You could have pressed ESC instead of the space bar to abort further printing and immediately return to the Report format page.)

Look at the fourth line of one of the labels. Do you see how far to the right the state is from the city? The problem is that you don't know how long the "City" entry is going to be. The Report format has a feature that solves this problem neatly. Press the space bar once more to return to the Report format screen.

FIGURE 3—32



CATEGORY

so that it sits on the first character of the "State" -J and a "<" symbol will appear to the left of the you print out your labels, the "State" entry will be e "City" entry with one space separating them. ng to the "Zip" category, all your information, and just to the right of the "State" entry.

PRINTER

look like when they're printed out on em your printer from the list. When just press the RETURN key to accept rth, should be printed out for you.

If you discovered when you printed out your labels that one or more lines had so many characters that it was running off the right edge of the label, you could change the number of **Characters per Inch** (CI) that your printer prints to a higher value. Most dot matrix printers support CI values of 12 and/or 17.

There are two printer options you *must* change. The first is **Paper Length** (PL). Change it to 1 inch. Each of your 6-line labels is considered to be a separate, 1-inch piece of paper.

The other option that must be changed is **Print report Header at top of each page** (PH). A report header consists of the file name, report name, page number, date, and record selection rules. And, since every label is a separate "page," you certainly don't want this report header to print on every label! PH is one of the last five options, grouped under **Formatting options**. These five have only "Yes" or "No" values. Every time you type one of their option codes, the option's value changes from "Yes" to "No" or from "No" to "Yes." Type **PH** and press RETURN.

Compare your altered Printer Options page with Figure 3-31. They should be the same. Press ESC to return to the Report format page.

PRINTING LABELS TO THE SCREEN

Let's print out the labels and take a look at them. Type ⌘ **-P** and you should see a list of from five to seven (depending on how many printers you have configured, 1, 2, or 3) choices of where you can print your

FIGURE 3—31

```
File: Customer List              PRINTER OPTIONS          Escape: Report Format
Report: Mailing Labels
================================================================================

-------Left and right margins--------      ------Top and bottom margins-------
PW: Platen Width          8.0 inches      PL: Paper Length         11.0 inches
LM: Left Margin           0.0 inches      TM: Top Margin            0.0 inches
RM: Right Margin          0.0 inches      BM: Bottom Margin         0.0 inches
CI: Chars per Inch         10             LI: Lines per Inch        6

    Line width            4.0 inches          Printing length      1.0 inches
    Char per line (est)   40                  Lines per page       6

          --------------------Formatting options---------------------
          SC:  Send Special Codes to printer                        No
          PD:  Print a Dash when an entry is blank                  No
          PH:  Print report Header at top of each of page           No
          OL:  Omit Line when all entries on line are blank         Yes
          KS:  Keep number of lines the Same within each record     Yes


--------------------------------------------------------------------------------
Type a two letter option code                                        54K Avail.
```

labels. Find the one that says, "The screen," choose it, and press RETURN. Your screen should look like Figure 3-32. Press the space bar to see the rest of your records. (You could have pressed ESC instead of the space bar to abort further printing and immediately return to the Report format page.)

Look at the fourth line of one of the labels. Do you see how far to the right the state is from the city? The problem is that you don't know how long the "City" entry is going to be. The Report format has a feature that solves this problem neatly. Press the space bar once more to return to the Report format screen.

FIGURE 3—32

```
Acct. No: 84-104
Mr. & Mrs. Rob Smith
1423 First Ave.
Meadowbrook                IL          60099


Acct. No: 83-282
Mr. Steve Miller
573. W. Elm St.
Meadowbrook                IL          60099


Acct. No: 84-220
Ms. D. McMullen
1615 Ninth Ave.
Bayshore                   IL          60990



Press Space Bar to continue                                    54K Avail.
```

JUSTIFYING A CATEGORY

Move your cursor so that it sits on the first character of the "State" category. Type ⌘-J and a "<" symbol will appear to the left of the category. Now, when you print out your labels, the "State" entry will be printed right next to the "City" entry with one space separating them. You could do the same thing to the "Zip" category, if you wanted to, and the "Zip" entry would print just to the right of the "State" entry.

PRINTING LABELS TO THE PRINTER

Now let's see what your labels look like when they're printed out on your printer. Type ⌘-P and select your printer from the list. When you're asked, "How many copies?" just press the RETURN key to accept one copy. Your entire file, all five records, should be printed out for you.

If AppleWorks keeps asking you to press the space bar after each label is printed, go back to the Printer Options for your printer (see Chapter 1) and change the option, **Stop at end of each page**, from "Yes" to "No." You should also be sure that the printer option, **Accepts top-of-page commands**, is set to "No." This is necessary if you want your labels to be properly spaced.

There is one other thing that could interfere with proper label spacing. Some printers have a feature that allows them to skip over the perforation in tractor-feed paper automatically. If your printer has this feature, make sure it's turned *off*. There should be a switch inside the printer to control this feature, and your printer's manual should tell you where it is.

SAVING YOUR DATA BASE FILE

Save your data base file to your data disk by typing **-S**. When AppleWorks saves your data base file, it also saves your screen layouts and your report formats. When you load back the file, your layouts and formats are there, too.

If you want to use a previously created report format, choose option 1, **Get a report format**, when you see the Report Menu. Then, select the report format you want to use from the Report Catalog. AppleWorks allows you to create a maximum of eight report formats per file.

II. EXAMPLE 2: THE WEEKLY REPAIR CALL REPORT

Your business, Hot & Cold Inc., employs three service technicians who perform on site repairs for your customers. You would like to prepare a weekly report that will list all of the service calls your techs made. You want to keep track of which tech performed the job, the number of hours each job took, the cost of any parts (including sales tax), and who the customer was.

You would like the report to compute the cost of the repair time to the customer (based on $45 per hour) and the total cost of each job (the sum of the charge for time and the charge for parts). You would like weekly totals on repair time (hours), cost of parts, and total job cost. You also would like subtotals for each technician. Sounds like a tall order, but that's just what you're going to do in this exercise.

Creating the File

Table 3-3 is a list of category names for this file. Use it to create your file in the same way you created the "Customer List" file in Example 1. Call this new file, "Repair Calls."

TABLE 3—3

Category Names
Technician
Acct. No.
Hours Billed
Parts Cost

Because you also want your report from this file to give you the labor cost and the total cost for each repair job, you might wonder why categories for these items have not been included in Table 3-3. The answer is that when you prepare your report, you will be able to *create* these two categories based on the data in your file.

Table 3-4 contains ten records for the file. I know it seems like a lot of work to type in all ten records, but please do it anyway. It's hard to show group totals if you only have a couple of records in your file, and if you type in all ten records, your totals will match mine.

When you're through typing the tenth record, ESC out to the multiple record format display of Review/Add/Change and compare your screen with Figure 3-33.

TABLE 3—4

Technician	Acct. No.	Hours Billed	Parts Cost
Chuck	83-211	1.5	120.75
Penney	85-109	1	0
Penney	84-142	1.75	79.40
Bill	83-115	2	55.20
Chuck	85-114	1	0
Chuck	83-121	2.5	248.75
Bill	84-200	1	.85
Penney	83-101	1.5	110.95
Chuck	85-147	1.25	45.30
Bill	84-138	1.5	67.35

FIGURE 3—33

```
File: Repair Calls              REVIEW/ADD/CHANGE          Escape: Main Menu

Selection: All records

Technician      Acct. No.       Hours Billed    Parts Cost
==========================================================================
Chuck           83-211          1.5             120.75
Penney          85-109          1               0
Penney          84-142          1.75            79.40
Bill            83-115          2               55.20
Chuck           85-114          1               0
Chuck           83-121          2.5             248.75
Bill            84-200          1               .85
Penney          83-101          1.5             110.95
Chuck           85-147          1.25            45.30
Bill            84-138          1.5             67.35


--------------------------------------------------------------------------
Type entry or use @ commands                                  @-? for Help
```

Adding a Category to a File

Now that you've typed in all the record data, you've just had a brainstorm. You've decided that you want to include as a category the *date* the service call was made. Is it too late? Do you have to start over? No, to both questions. With many data base programs, once you've set up the categories for a file, you're stuck with them. AppleWorks, however, allows you to add or remove categories whenever you want. There is a penalty, and you'll see what it is in a minute.

Type ⌘-N. AppleWorks takes you back to the Change Name/Category screen where you first entered category names for the file (Figure 3-34). Down at the bottom of the screen, AppleWorks is asking you whether you want to change the name of your data base file. Since you don't, just press the RETURN key.

You are now free to modify the list of category names any way you want. You can delete categories, change the name of existing categories, or add new ones. You want to add a new category called "Date." You can insert this new category anywhere in the list or place it at the bottom. Suppose you wanted to insert it between "Acct. No." and "Hours Billed." Move your cursor down to the first letter of the "Hours Billed" category and type ⌘-I, the Insert command.

Here comes the penalty I warned you about earlier. Over on the right side of the screen (Figure 3-35), AppleWorks is telling you that if

FIGURE 3—34

```
File: Repair Calls          CHANGE NAME/CATEGORY    Escape: Review/Add/Change


Category names
==============================================================================
Technician                                  |
Acct. No.                                   | Options:
Hours Billed                                |
Parts Cost                                  | Change category name
                                            | Up arrow   Go to previous category
                                            | Down arrow Go to next category
                                            | @-I        Insert new category
                                            | @-D        Delete this category
                                            |
                                            |
                                            |
                                            |
                                            |
------------------------------------------------------------------------------
Type entry or use @ commands                                      53K Avail.
```

FIGURE 3—35

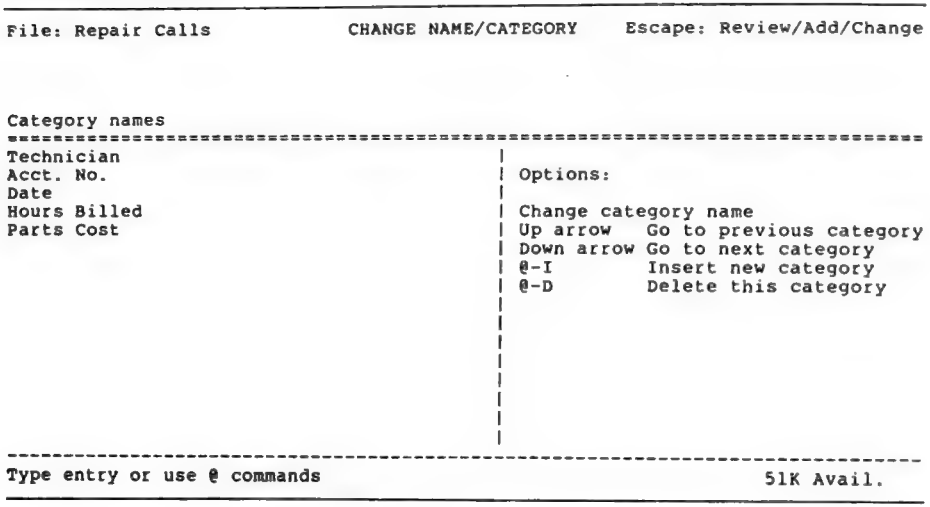
```
File: Repair Calls          CHANGE NAME/CATEGORY    Escape: Review/Add/Change


Category names
==============================================================================
Technician                                  |
Acct. No.                                   |
Hours Billed                                | If you add or delete category
Parts Cost                                  | names at this point...
                                            |
                                            | Report formats for this file
                                            | will be erased.
                                            |
                                            | Custom record layouts, made
                                            | using @-L, will be set back
                                            | to standard.
                                            |
                                            |
                                            |
------------------------------------------------------------------------------
Do you really want to do this?  No  Yes
```

you add or delete categories, any report formats you have created and any record layouts you have changed for this file will be thrown away. (*Note:* If you haven't changed a record layout and/or you haven't created a Report format, you won't see the warnings shown in Figure 3-35. You can't lose what you don't have. If you *did* see the warning message on your screen, press the "Y" key and don't press RETURN.)

AppleWorks has inserted a blank line for you to type in the new category. Change to the overstrike cursor (⌘ -E) if you're currently using the insert cursor, type **Date**, and press RETURN (Figure 3-36). Now ESC back to Review/Add/ Change.

FIGURE 3—36



Changing Data in the Multiple Record Format

Your screen should look like Figure 3-37. AppleWorks has inserted your new "Date" category and has put a dash in each entry to show that no data have been entered. While you could Zoom (⌘ -Z) to the single record format and enter data for the "Date" category in each record, it is easier if you stay in the multiple record format.

DATE CONVERSION

Type ⌘ -1 then use the TAB key to move the cursor over to the "Date" column. Suppose the first service call occurred on June 24. Type **6/24** and watch what happens when you press the RETURN key. AppleWorks converted your "6/24" to "Jun 24." Why did this happen? It's because the category was named "Date." Anytime a category is named "Date" or contains the word "date" in it (for example, "Birth Date"), AppleWorks will try to convert what you enter into the Month-and-Day format. (*Note:* AppleWorks performs a similar conversion when a category is named, or contains the word, "Time.")

FIGURE 3—37

```
File: Repair Calls                REVIEW/ADD/CHANGE              Escape: Main Menu

Selection: All records

Technician      Acct. No.       Date          Hours Billed    Parts Cost
==========================================================================
Chuck           83-211          -             1.5             120.75
Penney          85-109          -             1               0
Penney          84-142          -             1.75            79.40
Bill            83-115          -             2               55.20
Chuck           85-114          -             1               0
Chuck           83-121          -             2.5             248.75
Bill            84-200          -             1               .85
Penney          83-101          -             1.5             110.95
Chuck           85-147          -             1.25            45.30
Bill            84-138          -             1.5             67.35


--------------------------------------------------------------------------
Type entry or use @ commands                                    @-? for Help
```

DITTOING ENTRIES

Suppose the next four service calls all occurred on the same day, June 24. You could type in "6/24" four more times, but there is an easier way. To duplicate a category entry in the multiple record display, just type ⌘- ", the Dittoing command. (*Note:* Don't use the SHIFT key). Type ⌘- " a total of four times.

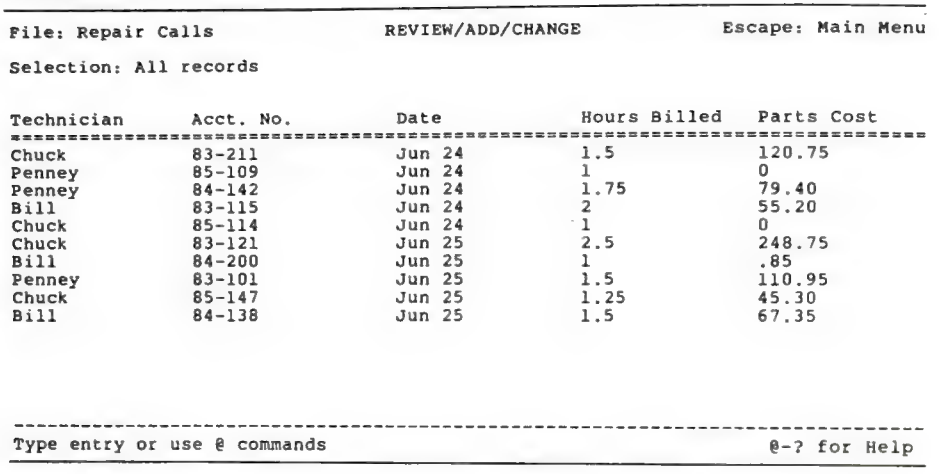
Now let's say that the remaining five service calls occurred the next day, June 25. Type **6/25**, press RETURN, and use the Dittoing command to fill in the remaining records (Figure 3-38).

Creating a "Tables" Report

It's now time to prepare your weekly service call report. While this is a somewhat involved process, keep in mind that you only have to do this one time. Once you have created a Report format, you can use it week after week. Remember, the Report format is saved along with the rest of your file.

Type ⌘- **P** to leave Review/Add/Change and go to the Report Menu (Figure 3-22). This time, select option 2, **Create a new "tables" format**, and name it "Weekly Report." Your screen should look like Figure 3-39.

FIGURE 3—38



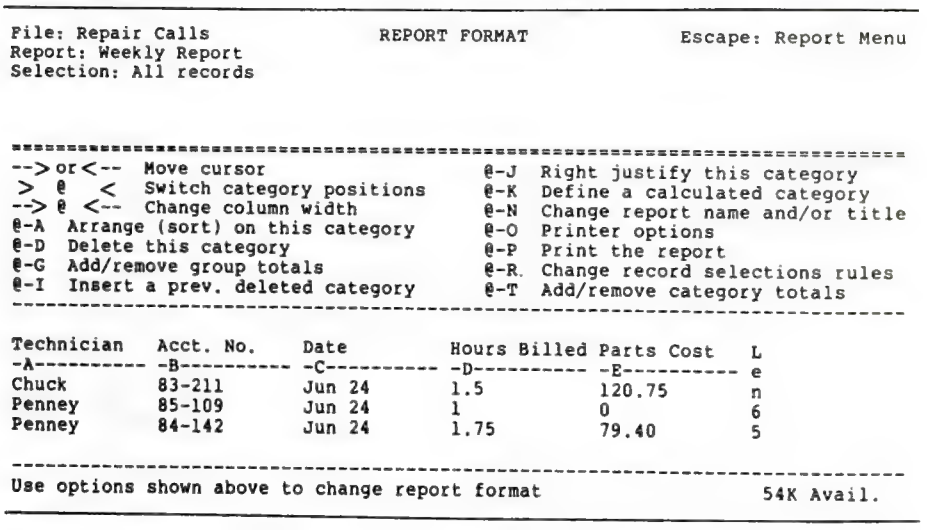
```
File: Repair Calls                REVIEW/ADD/CHANGE              Escape: Main Menu

Selection: All records

Technician      Acct. No.       Date            Hours Billed    Parts Cost
==========================================================================
Chuck           83-211          Jun 24          1.5             120.75
Penney          85-109          Jun 24          1               0
Penney          84-142          Jun 24          1.75            79.40
Bill            83-115          Jun 24          2               55.20
Chuck           85-114          Jun 24          1               0
Chuck           83-121          Jun 25          2.5             248.75
Bill            84-200          Jun 25          1               .85
Penney          83-101          Jun 25          1.5             110.95
Chuck           85-147          Jun 25          1.25            45.30
Bill            84-138          Jun 25          1.5             67.35


--------------------------------------------------------------------------------
Type entry or use @ commands                                    @-? for Help
```

FIGURE 3—39



```
File: Repair Calls                REPORT FORMAT              Escape: Report Menu
Report: Weekly Report
Selection: All records

================================================================================
-->or<--  Move cursor                        @-J  Right justify this category
 >  @   <  Switch category positions         @-K  Define a calculated category
-> @ <--  Change column width                @-N  Change report name and/or title
@-A  Arrange (sort) on this category         @-O  Printer options
@-D  Delete this category                    @-P  Print the report
@-G  Add/remove group totals                 @-R  Change record selections rules
@-I  Insert a prev. deleted category         @-T  Add/remove category totals
--------------------------------------------------------------------------------

Technician   Acct. No.    Date          Hours Billed Parts Cost   L
-A---------- -B---------- -C---------- -D---------- -E---------- e
Chuck        83-211       Jun 24        1.5          120.75       n
Penney       85-109       Jun 24        1            0            6
Penney       84-142       Jun 24        1.75         79.40        5

--------------------------------------------------------------------------------
Use options shown above to change report format                  54K Avail.
```

THE REPORT FORMAT SCREEN

In the middle section of the screen, you see a list of all the commands that work in the Tables Report format. (That's why you don't have a special Help screen available here. All the commands are displayed all the time.)

Below this, you see all of the data in the first three records in your file along with the category names. This is AppleWorks' default report format. If you were to print your report now, it would look just the way

those three records appear on the screen. Each record would be printed on a single line. All five categories would be printed in the order that you see them, and each category would be 12 spaces wide, with 1 space between adjacent categories.

If you look just to the right of the "Parts Cost" column, you'll see the Length Indicator. It's telling you that the total line length for all five categories is 65 characters. If you delete categories, create new categories, or adjust the width of one or more categories, the Length Indicator will change accordingly.

MOVING CATEGORIES AROUND

You *are* going to be creating new, calculated categories, but before you do, let's move the "Date" so that it will be the left-most category. There is an easy way to do this. The left- and right-arrow keys will move your cursor from one category to the next. Press the right-arrow key twice so that your cursor is in column C, the "Date" column. (*Note:* The columns are labeled with letters on the dashed line below the category names.) With your cursor in column C, type ◆ - < (hold down the OPEN-APPLE key while you type the "<" key; don't use the SHIFT key). Notice that the "Date" and "Acct. No." categories have switched positions. Your cursor is still in the "Date" category, but that category is now in column B. Press ◆ - < again and the "Date" and "Technician" categories will switch (Figure 3-40). ◆ - < causes a category to exchange position with the one to its left; ◆ - > swaps places with the category on the right.

FIGURE 3—40

```
File: Repair Calls                REPORT FORMAT              Escape: Report Menu
Report: Weekly Report
Selection: All records


================================================================================
-->or<--  Move cursor                    @-J  Right justify this category
 >  @   <  Switch category positions     @-K  Define a calculated category
-->@ <--  Change column width            @-N  Change report name and/or title
@-A  Arrange (sort) on this category     @-O  Printer options
@-D  Delete this category                @-P  Print the report
@-G  Add/remove group totals             @-R  Change record selections rules
@-I  Insert a prev. deleted category     @-T  Add/remove category totals
--------------------------------------------------------------------------------

Date         Technician   Acct. No.     Hours Billed  Parts Cost  L
-A---------- -B---------- -C---------- -D----------- -E---------- e
Jun 24       Chuck        83-211        1.5           120.75      n
Jun 24       Penney       85-109        1             0           6
Jun 24       Penney       84-142        1.75          79.40       5

--------------------------------------------------------------------------------
Use options shown above to change report format                    54K Avail.
```

ADJUSTING COLUMN WIDTH

The width of a column can be increased or decreased by holding down the OPEN-APPLE key while pressing either the right- or left-arrow key, respectively. Since all dates will be 6 characters long, you can decrease the width of the "Date" column to as few as 6 characters without worrying about "chopping off" any of the data in that column. With your cursor in column A, type ⌘ -left-arrow five times until the width of column A has been reduced to 7 characters. (Leaving an extra space will improve the look of your report.) Notice that the Length Indicator now reads 60.

Experiment with adjusting the width of other columns. What you're trying to do is to create the nicest looking and easiest-to-read report possible.

RIGHT-JUSTIFYING NUMERICAL CATEGORIES

Two of your categories, "Hours Billed" and "Parts Cost," contain numerical data. The problem is that AppleWorks doesn't know that this information should be treated as numbers. Look at the three entries in the "Parts Cost" column. The entries don't line up because AppleWorks hasn't been told that the entries are numbers. The Right-Justify command, ⌘ -J, will print all the numbers in a category so that their decimal points line up.

Place your cursor in column D, "Hours Billed," and type ⌘ **-J**. At the bottom of the screen, AppleWorks asks you, "How many decimal places for this category:". The default value is zero decimal places, but since the hours are given to the nearest hundredth (for example, 1.75 hours), you want the hours printed to two decimal places, so type **2** and press RETURN. AppleWorks then asks you for the number of "Blank spaces after this category:". This is the number of spaces it will leave between this category and the one following it. The default value is three, and you can choose any value greater than zero. (I usually choose two blank spaces.)

After you have chosen the number of blank spaces you want and have pressed the RETURN key, you'll see that the three sample entries in column D have been replaced by a bunch of nines (Figure 3-41). This is AppleWorks' way of showing you that when this category is printed in your report, all of the entries will be printed with two decimal places. (*Note:* If you right-justify a category with non-numerical data in it, AppleWorks will just print it flush with the right edge of the column.)

Now, move your cursor to column E, "Parts Cost," and right-justify this category, too. Again choose two decimal places.

If you should want to *remove* the right-justify feature from a category, just place your cursor in that column and type ⌘ **-J**.

FIGURE 3—41

```
File: Repair Calls                REPORT FORMAT              Escape: Report Menu
Report: Weekly Report
Selection: All records


================================================================================
-->or<--  Move cursor                          @-J  Right justify this category
 >  @   <  Switch category positions           @-K  Define a calculated category
-->@ <--  Change column width                  @-N  Change report name and/or title
@-A  Arrange (sort) on this category           @-O  Printer options
@-D  Delete this category                      @-P  Print the report
@-G  Add/remove group totals                   @-R  Change record selections rules
@-I  Insert a prev. deleted category           @-T  Add/remove category totals
--------------------------------------------------------------------------------

Date     Technician  Acct. No.  Hours Billed   Parts Cost    L
-A-----  -B---------  -C-------  -D-----------  -E----------  e
Jun 24   Chuck        83-211     999999999.99  120.75        n
Jun 24   Penney       85-109     999999999.99  0             5
Jun 24   Penney       84-142     999999999.99  79.40         7

--------------------------------------------------------------------------------
Use options shown above to change report format                    54K Avail.
```

CREATING CALCULATED CATEGORIES

You are now ready to create the two categories that have been "missing" so far: "Labor Cost" and "Total Cost." As I explained earlier, the reason you didn't set up separate categories for these items was that the categories already in your file could be used to create the two you needed. Why enter extra information when your computer can do it for you?

Before we create a column for "Labor Cost" you have to decide two things. First, how are you going to calculate labor cost? Since Hot & Cold Inc. is your company, you can set any labor rate you wish. Let's suppose that you decide to charge $45 per hour. That means that the labor cost is computed by multiplying 45 times the number of hours in the "Hours Billed" column.

Your second decision is where in your report do you want the column for "Labor Cost" to appear. It makes sense to insert the column for "Labor Cost" after the "Hours Billed" column, so move your cursor to column E, the one that's just to the right of the "Hours Billed" column, and type **⌘-K**.

AppleWorks immediately inserts a column with the category name "Calculated." At the bottom of the screen you are asked to "Type a name for the calculated category:". The default name "Calculated" is already listed, and you will want to replace it with your own choice for a category name. Type CONTROL-**Y** to erase "Calculated." Type **Labor Cost** and press RETURN.

AppleWorks wants to know how it should calculate values for "Labor Cost." That's what it's asking you when it says, "Type calculation rules:". Let me give you some facts about these calculation rules before you go on. First, if you want to use an existing category (such as "Hours Billed") in the calculation, use the column letter (D, for "Hours Billed"). Second, whatever calculation you decide on, *don't* type any spaces between the items. If you're adding columns A and B together, for example, type just three characters, "A+B." Third, AppleWorks performs all calculations from left to right. It does *not* follow the rule of multiplying or dividing before adding or subtracting. And parentheses, "( )," are not allowed. Fourth, if AppleWorks doesn't understand your calculation, it will print a string of "#" characters in the calculated column when it prints your report. And fifth, only four mathematical operations can be performed: adding, subtracting, multiplying, and dividing. The four symbols representing these operations are, respectively: " + ," " - ," "*," and "/."

The calculation you want for the "Labor Cost" column is the product of 45 times the value in column D, so type **45*D** and press RETURN.

All calculated categories are automatically right-justified. So choose two decimal places and whatever value you want for blank spaces. Your screen should look like Figure 3-42.

Now do the whole process again and create a calculated category for "Total Cost." You'll probably want "Total Cost" to be the last column in your report, so move your cursor as far to the right as it will go before

FIGURE 3—42

```
File: Repair Calls                REPORT FORMAT          Escape: Report Menu
Report: Weekly Report
Selection: All records


================================================================================
-->or<--  Move cursor                        @-J  Right justify this category
 >  @   <  Switch category positions         @-K  Define a calcuated category
-->@ <--  Change column width                @-N  Change report name and/or title
@-A  Arrange (sort) on this category         @-O  Printer options
@-D  Delete this category                    @-P  Print the report
@-G  Add/remove group totals                 @-R  Change record selections rules
@-I  Insert a prev. deleted category         @-T  Add/remove category totals
--------------------------------------------------------------------------------

Date    Technician  Acct. No.  Hours Billed  Labor Cost   Parts Cost  L
-A----- -B--------- -C-------- -D----------  -E---------  -F--------  e
Jun 24  Chuck       83-211     999999999.99  99999999.99  9999999.99  n
Jun 24  Penney      85-109     999999999.99  99999999.99  9999999.99  7
Jun 24  Penney      84-142     999999999.99  99999999.99  9999999.99  0

--------------------------------------------------------------------------------
Use options shown above to change report format                 54K Avail.
```

you type ⌘ -K. Use "Total Cost" for the category name, and for your calculation rule use "E+F." (Yes, that's right. You *can* use the results of one calculated category in the calculation rules of another. Just be sure that the calculated category you're referring to lies to the *left* of the calculated category you're defining.)

Compare your screen to Figure 3-43 and notice that part of column G, the "Total Cost" column, is off the screen. If you move your cursor to the right, the columns will scroll to the left and you'll be able to see all of column G.

FIGURE 3—43

```
File: Repair Calls                    REPORT FORMAT              Escape: Report Menu
Report: Weekly Report
Selection: All records


================================================================================
--> or <--  Move cursor                        @-J  Right justify this category
 >   @   <  Switch category positions         @-K  Define a calcuated category
--> @ <--   Change column width               @-N  Change report name and/or title
@-A  Arrange (sort) on this category          @-O  Printer options
@-D  Delete this category                     @-P  Print the report
@-G  Add/remove group totals                  @-R  Change record selections rules
@-I  Insert a prev. deleted category          @-T  Add/remove category totals
--------------------------------------------------------------------------------

Date     Technician  Acct. No.  Hours Billed  Labor Cost   Parts Cost  Total Cos
-A-----  -B---------  -C-------  -D----------  -E---------  -F-------  -G-------
Jun 24   Chuck       83-211     999999999.99  99999999.99  999999.99  999999999
Jun 24   Penney      85-109     999999999.99  99999999.99  999999.99  999999999
Jun 24   Penney      84-142     999999999.99  99999999.99  999999.99  999999999

-------------------------------------------------------------------------- More -->
Use options shown above to change report format                      54K Avail.
```

There is one more thing you should know about calculated categories, and that is that individual values are calculated as each line of your report is being printed. That's why you can't see values for your calculated categories in the Report Format. What this means is that you cannot Arrange (Sort) your file on a calculated category. Nor can you use Record Selection on a calculated category.

ADDING CATEGORY TOTALS

If you look back at your original plan for this report, you'll see that you wanted the report to print out column totals on the "Hours Billed," "Parts Cost," and "Total Cost" categories. To produce a total for a particular category, simply move your cursor to the category and type ⌘ -T. Accept the default value for number of decimal places and select a value for blank spaces. AppleWorks draws a double line on your screen at the bottom of the column to indicate that the category will be totaled at the end of the report.

Now add "Category Totals" to the "Hours Billed," "Parts Cost," and "Total Cost" columns and compare your screen with Figure 3-44. (*Note:* In Figure 3-44, column A has been scrolled off screen to the left.)

ADDING GROUP TOTALS

The last feature you wanted your report to have was to print group totals for each technician so that you could see how many billable hours each technician worked, etc. Before you set up "Group Totals," you had better Arrange your file by technician name so that all Bill's records print one after the other, followed by Chuck's records, and so forth.

Move your cursor to column B, "Technician," and type ⌘ **-A**. Choose option 1, **From A to Z**, and notice that the three records being displayed are all Bill's records.

With your cursor still in column B, type ⌘ **-G**, to set up "Group Totals" in your report. AppleWorks asks if you want your report to print "Group Totals" only. If you say "Yes," your report won't print out individual records. It will only print the three "Group Total" lines and a final grand total. And it won't print out any entries at all for categories that weren't totaled. Since this isn't what you want, press the "N" key to respond "No" (don't press RETURN).

The second question you are asked is whether you want your report to start a new page every time there is a change in the "Group Total" category—in other words, every time the technician name changes. Answer "No" to this question, too, by pressing the "N" key.

FIGURE 3—44

```
File: Repair Calls                    REPORT FORMAT          Escape: Report Menu
Report: Weekly Report
Selection: All records


================================================================================
--> or <--  Move cursor                    @-J  Right justify this category
>  @   <    Switch category positions      @-K  Define a calculated category
--> @ <--   Change column width            @-N  Change report name and/or title
@-A  Arrange (sort) on this category       @-O  Printer options
@-D  Delete this category                  @-P  Print the report
@-G  Add/remove group totals               @-R  Change record selections rules
@-I  Insert a prev. deleted category       @-T  Add/remove category totals
--------------------------------------------------------------------------------

Technician  Acct. No.  Hours Billed  Labor Cost   Parts Cost  Total Cost    L
-B--------- -C-------- -D---------- -E--------- -F--------- -G---------- e
Chuck       83-211     999999999.99  99999999.99  9999999.99  999999999.99 n
Penney      85-109     999999999.99  99999999.99  9999999.99  999999999.99 8
Penney      84-142     999999999.99  99999999.99  9999999.99  999999999.99 30

<-- More ------------------------------------------------------------------
Use options shown above to change report format                  54K Avail.
```

It doesn't seem as if anything has changed in your Report format, but if you look just above the double line on your screen (Figure 3-45) you'll see a new line that says, "Group totals on: "Technician."

PRINTER OPTIONS

You are almost ready to print out your report. Before you do, though, you should look at the Printer Options page. Type ⌘ -O (Figure 3-46).

FIGURE 3—45

```
File: Repair Calls                    REPORT FORMAT              Escape: Report Menu
Report: Weekly Report
Selection: All records


Group totals on: Technician
================================================================================
-->or<--  Move cursor                        @-J  Right justify this category
>  @   <  Switch category positions          @-K  Define a calculated category
-->@ <--  Change column width                @-N  Change report name and/or title
@-A  Arrange (sort) on this category         @-O  Printer options
@-D  Delete this category                    @-P  Print the report
@-G  Add/remove group totals                 @-R  Change record selections rules
@-I  Insert a prev. deleted category         @-T  Add/remove category totals
--------------------------------------------------------------------------------

Technician  Acct. No.  Hours Billed  Labor Cost  Parts Cost  Total Cost   L
-B--------- -C-------- -D----------  -E---------  -F---------  -G---------- e
Bill        83-115     999999999.99  99999999.99  9999999.99  999999999.99 n
Bill        84-200     999999999.99  99999999.99  9999999.99  999999999.99 8
Bill        84-138     999999999.99  99999999.99  9999999.99  999999999.99 3
                       ============               ==========  ============
<--- More ------------------------------------------------------------------
Use options shown above to change report format                   54K Avail.
```

FIGURE 3—46

```
File: Repair Calls                  PRINTER OPTIONS          Escape: Report Format
Report: Weekly Report
================================================================================

-------Left and right margins--------      ------Top and bottom margins-------
PW: Platen Width          8.0 inches      PL: Paper Length          11.0 inches
LM: Left Margin           0.0 inches      TM: Top Margin             0.0 inches
RM: Right Margin          0.0 inches      BM: Bottom Margin          2.0 inches
CI: Chars per Inch         10             LI: Lines per Inch         6

    Line width            8.0 inches          Printing length       9.0 inches
    Char per line (est)   80                  Lines per page        54

          --------------------Formatting options----------------------
          SC:  Send Special Codes to printer                        No
          PD:  Print a Dash when an entry is blank                  No
          PH:  Print report Header at top of each of page           Yes
               Single, Double or Triple Spacing (SS/DS/TS)          SS



--------------------------------------------------------------------------------
Type a two letter option code                                     54K Avail.
```

The commands for this Printer Options screen are almost the same as those in the Labels format. Notice the two lines, "Line width" and "Char per line (est)." You can't change their values directly; they don't have two-character codes. They are affected by the values of the four options above, **Platen Width**, **Left** and **Right Margins**, and **Characters per Inch**. Line width is the result of subtracting left margin and right margin from platen width, and characters per line is the product of line width times characters per inch.

Do you remember how wide your report was? If you don't, ESC back to your Report format, look at the Length Indicator (which is really a line width indicator) and then return to Printer Options (⌘ **-O**). Your Length Indicator probably shows a value of about 85 characters. The problem is that, according to the Char per Line value in Printer Options, your printer is going to print only 80 characters. This means that the last few characters of every line are going to be chopped off. So you're going to have to do something about it. You could try to shorten the width of some of the columns, but let's see how you can use Printer Options to solve the problem.

You can't change the platen width (unless you have a wide-carriage printer), and the left and right margins are already set to zero. That leaves only the number of characters per inch your printer will print. Most printers will print more than 10 characters per inch, and your printer's manual will tell you what values are supported. Try a value of 12 characters per inch. Type **CI**, RETURN, **12**, and RETURN. Notice that not only did the screen value for Characters per Inch change from 10 to 12, but estimated Characters per Line increased from 80 to 96. (*Note:* If your printer doesn't support 12 characters per inch, try 17.)

The four options listed under **Top and bottom margins** control printing down the page. **Printing length** is computed by subtracting top margin and bottom margin from page length. The number of **Lines per page** is the product of lines per inch times printing length.

The SC option, **Send Special Codes to printer**, allows you to give your printer one or more commands at the beginning of your report. Suppose, for example, you wanted your printer to print the entire report in boldface. SC lets you type in this command. Suppose your printer's command for boldface is the two characters: ESC ! (the ESC character followed by an exclamation point) as it is with Apple's Imagewriter printer. If you wanted your report done in boldface, you would type **SC** and press RETURN. You would then press the ESC key, type an exclamation point (shift 1), and then type the caret or circumflex character (shift 6) to indicate that you were through typing. (*Note:* The

caret is the only character that will return you to the Printer Options screen once you begin entering Special Codes.) If you want to remove any Special Codes you had previously typed in, type **SC** again and respond "No" (type **N**) to the question, "Is this OK?" Then you can type the caret to return to Printer Options.

Print a Dash when entry is blank (PD), actually serves two purposes. With non-numerical data, such as technician names, the PD command does just what you think it will. If a particular entry was left blank, when the report is printed a dash will be printed if PD's value is "Yes." If PD's value is "No," the place in the report is left blank. If a category has been chosen to be numerical, either with the Right-Justify (⌘ -J) command or the Category Total (⌘ -T) command, then PD works a little differently. If PD's value is "No" and an entry is either blank or has a value of zero, then the place in the report is left blank (in other words, a zero value won't print). If PD's value is "Yes," both blank entries and zero value entries will be printed as zeros. Since you have zero value entries in your "Parts Cost" category that you want to have printed as zeros, type **PD** and press RETURN. Notice PD's value changes from "No" to "Yes."

The report header consists of four lines. Line 1 contains the name of your file and the page number. (AppleWorks automatically numbers the pages of your report.) Line 2 has the name and date of your report. Category names are printed on line 3. And line 4 is a row of dashes. The default value is "Yes," and normally, for this kind of report, you will want a report header printed at the top of each page.

The last option allows you to choose single, double, or triple line spacing between records in your report. Selection is made by typing SS, DS, or TS and pressing RETURN. Let's choose to double space your report. Type **DS** and RETURN. By the way, this option has no effect on the four-line header.

PRINTING THE REPORT

At last you're ready to print your report. ESC back to the Report format screen and type ⌘ **-P**. Select your printer from the list. Type today's date and press RETURN. Then press RETURN once more to accept the default value of one copy. Compare your printed report with Figure 3-47.

Notice that every time the technician name changed, totals were printed for the records with that technician name. That's what the term "Group Total" means. At the bottom of your report are the totals of all the records for "Hours Billed," "Parts Cost," and "Total Cost" categories.

FIGURE 3—47

File: Repair Calls Page 1
Report: Weekly Report

Date	Technician	Acct. No.	Hours Billed	Labor Cost	Parts Cost	Total Cost
Jun 24	Bill	83-115	2.00	90.00	55.20	145.20
Jun 25	Bill	84-200	1.00	45.00	.85	45.85
Jun 25	Bill	84-138	1.50	67.50	67.35	134.85
			4.50		123.40	325.90
Jun 24	Chuck	83-211	1.50	67.50	120.75	188.25
Jun 24	Chuck	85-114	1.00	45.00	0.00	45.00
Jun 25	Chuck	83-121	2.50	112.50	248.75	361.25
Jun 25	Chuck	85-147	1.25	56.25	45.30	101.55
			6.25		414.80	696.05
Jun 24	Penney	85-109	1.00	45.00	0.00	45.00
Jun 24	Penney	84-142	1.75	78.75	79.40	158.15
Jun 25	Penney	83-101	1.50	67.50	110.95	178.45
			4.25		190.35	381.60
			15.00*		728.55*	1403.55*

Final Comments

While there were only two data base exercises in this chapter, they encompassed virtually all of the available features and options. I encourage you to create your own data bases and experiment with the two different report formats, labels, and tables. Become familiar with the Record Selection function. It's really very versatile. Adjust the single and multiple record layouts to suit you. And, above all, keep at it. The more you use this and the other sections of AppleWorks, the easier it will be to make the program work for you.

CHAPTER

4

THE SPREADSHEET

Now that you're here in the Spreadsheet section of AppleWorks you may be wondering, "What do I do with a spreadsheet?" Or even, "What *is* a spreadsheet?" If you feel this way, don't worry. You've got a lot of company.

The Spreadsheet application differs in a major way from Word Processing and Data Base applications. People wrote memos, letters, and books long before the existence of word processing programs. Word processing just makes writing and editing easier. Similarly, people kept information in files for centuries before there were data base programs to make that job easier. But until microcomputers were available, the concept of a spreadsheet did not exist—which means that spreadsheet programs have been around for less than 10 years.

A spreadsheet allows you to take any situation that can be expressed in numbers and set up a mathematical model of it. In this chapter, you will be creating several spreadsheets that will be used to demonstrate the various features and functions of this section of AppleWorks. You will be typing different kinds of data into the spreadsheet and will be using virtually all of the commands. Here's one thing to keep in mind: Any time you're typing in data and you want to erase what you've typed, just press the ESC key. And, if you're using any spreadsheet command, pressing ESC cancels the command and returns you to the Review/Add/Change screen.

I. EXAMPLE 1: THE SALES FORECAST

Suppose you owned a company whose gross sales last year were $130,000. You've owned this company for a number of years, and, by observing the sales numbers for each month, you know what fraction of the total year's sales will be made each month (10 percent in January, 8 percent in February, and so forth). A spreadsheet allows you to express each of the 12 months' sales values as a fraction, or percentage, of a single yearly sales projection. You can then change just one number on your spreadsheet, the yearly sales projection, and all 12 monthly sales figures will change automatically.

This is a simple application, but let's use it as the first example of creating a spreadsheet.

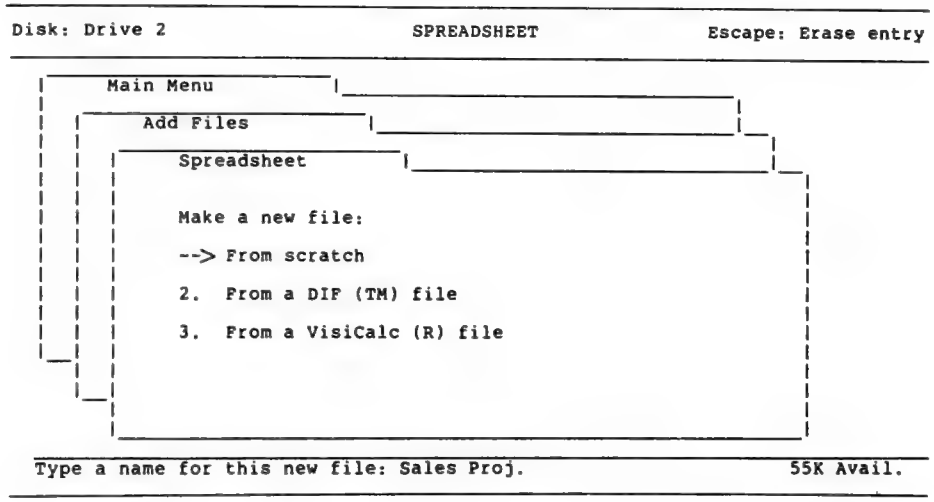
Creating a New Spreadsheet

Boot up AppleWorks and select option 1, **Add files to the Desktop**, from the Main Menu. Since you are creating a new spreadsheet, choose

option 5, **Make a new file for the Spreadsheet**. Select **From scratch** from the Spreadsheet Menu (Figure 4-1) and name your spreadsheet, "Sales Proj."

After you've named your spreadsheet and pressed RETURN, your screen should look like Figure 4-2. This is the Review/Add/Change screen for the spreadsheet. The top line of the screen contains the usual information: the name of your file ("Sales Proj."), the name of the activity (Review/ Add/Change), and the place the program will go to if you press the ESC key (Main Menu).

FIGURE 4—1

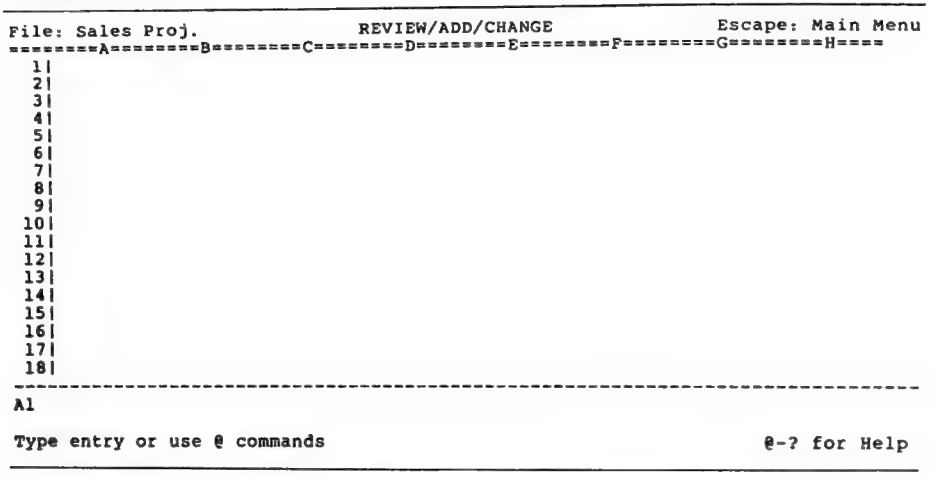


The Spreadsheet Grid

The next line is a row of "=" symbols with letters (A, B, C, etc.) interspersed. Running down the left side of the screen are the numbers 1 through 18. Those letters and numbers set up a grid pattern on the screen so that any position on the grid can be referred to by a letter/number combination. The letters refer to columns, while the numbers refer to rows. The bright bar you see in the upper left corner is your cursor. It's sitting in column A, row 1, so its position is referred to as A1. If you look at the third line from the bottom of your screen, on the extreme left, you'll see the cursor position indicator.

The four arrow keys can move your cursor to other locations on the grid. Try it. As you move the cursor around, watch the cursor indicator change.

FIGURE 4—2



The Spreadsheet Cell

Each one of those grid locations (A1, B6, etc.) is called a *cell*. All the cells are empty now because this is a new spreadsheet, but you are free to fill cells with any data you choose. Any cell can be filled with one of three types of data. You can put words in a cell; this is called *label data*. You can put numbers in a cell (*value data*). Or you can put a calculation in a cell and make its value the result of the values of one or more other cells.

You are not seeing all of the cells in your spreadsheet because they won't all fit on your screen at the same time. You can see, for example, columns A through H, but the columns actually range from A through DW, a total of 127 columns (A through Z, AA through AZ, BA through BZ, CA through CZ, and DA through DW). Similarly, there are more rows than the 18 you're looking at now. In fact, there are 999 rows. This gives you a total of 126,873 cells. (*Note:* You can't use them all because of memory limitations. If your Apple has 128K of internal memory, you can fill about 6,000 cells. If your Apple has 64K of memory, you are limited to about 1,000 filled cells.)

The Help Screen

Notice at the bottom right corner of your screen you have a Help screen available. To see the screen, type ◆ -?. As you might imagine,

there are several special commands for the spreadsheet. After you learn how to use these commands, the Help screen can be used to aid you in recalling which keys to press to execute a particular command. Press the ESC key to return to the Review/Add/Change screen.

Typing Label Data into Cells

Let's begin your sales projection spreadsheet. The location of the cursor determines which cell you're going to be typing into. Move the cursor to cell B1 and type, **Hot & Cold Inc.** As you start to type, two things happen. The characters that you type are placed directly in the cell your cursor is sitting on. And, on the second line from the bottom on your screen, you see the word "Label:" followed by the characters you type (Figure 4-3).

How did AppleWorks know that you were typing label data, instead of value data? It knew by the first character you typed. If the first character is a letter, AppleWorks assumes that the data are label data; if the first character in a cell is a number (or a "+," "-," "(," "." or "@" character), AppleWorks assumes the data to be value data. This brings up an interesting question. Suppose you wanted to put a label in a cell and the first character of the label was *not* a letter. How could you tell AppleWorks that you wanted your data to be treated as a label? The answer is to type a quote symbol (") before you begin typing the actual

FIGURE 4—3

```
File: Sales Proj.              REVIEW/ADD/CHANGE            Escape: Erase entry
========A========B========C========D========E========F========G========H=====
  1|          Hot
  2|
  3|
  4|
  5|
  6|
  7|
  8|
  9|
 10|
 11|
 12|
 13|
 14|
 15|
 16|
 17|
 18|
--------------------------------------------------------------------------------
B1
Label: Hot
Complete the label                                                  55K Avail.
```

label. AppleWorks will treat whatever follows quotes as label data. The quote symbol itself is not printed. (If you want the first character in a cell to be a quote symbol, you have to type *two* quote symbols.)

Continue typing the rest of **Hot & Cold Inc.** If you type the wrong character, use the DELETE key to erase your mistake. As you reach the end of the cell, AppleWorks automatically extends your label into the next cell, C1. All columns, and therefore all cells, have the default width of 9 characters. Later you'll see how to change the width of columns. When you complete the label, press the RETURN key. (*Note:* You have to press the RETURN key whenever you are through typing the contents of a cell.) After you have pressed RETURN, look at the cursor indicator. It not only shows that your cursor is on cell B1 but also shows that the cell contains label data and what the contents of the cell are.

Move your cursor to cell A3 and type the label, **Annual Sales Forecast =** . (See Figure 4-4.) Your label will extend from cell A3 to cell C3.

FIGURE 4—4

```
File: Sales Proj.              REVIEW/ADD/CHANGE              Escape: Main Menu
========A========B========C========D========E========F========G========H====
  1|          Hot & Cold Inc.
  2|
  3|Annual Sales Forecast =
  4|
  5|
  6|
  7|
  8|
  9|
 10|
 11|
 12|
 13|
 14|
 15|
 16|
 17|
 18|
--------------------------------------------------------------------------------
A3: (Label) Annual Sa

Type entry or use @ commands                                      @-? for Help
```

Typing Value Data into Cells

Move your cursor to cell D3. This is the cell that will contain the projected value for your company's annual sales. Let's choose a value of $150,000. Type **150000** without the dollar sign or the comma (don't forget to press RETURN). Notice that as you type the first digit, the "1," AppleWorks immediately recognizes that you are typing a value. Because the entry is a value, it won't appear in the cell until after you press the RETURN key. As with label data, you can use the DELETE key to erase

mistakes, until you press the RETURN key (or an arrow key). Pressing RETURN or an arrow key indicates that you are through typing into that cell. You can make changes in a completed cell either by entering new data or by using the Edit command, ⌘-U, which you'll learn about in a moment.

Changing the Value Data Format

You would like that 150000 value in cell D3 to look like a dollar value. You'd like it to begin with a dollar sign and have commas appropriately placed. Because D3's entry is a value, you can't type in a dollar sign or commas, but you can change the display format, or layout, of the cell. That way, AppleWorks will put in the dollar sign and commas for you.

Leave your cursor on cell D3 and type ⌘-**L**, the Change Layout command. Appleworks asks you if you want to change the layout of a single entry, one or more rows, one or more columns, or a block of cells. Type **E** (don't press RETURN) to select a single entry. There are three types of layouts: Value format, Label format, and Protection. Type **V** to choose Value format. You now see six types of Value formats: Fixed, Dollars, Commas, Percent, Appropriate, and Standard. You'll learn about each of these formats later on in this chapter. Right now, type **D** for Dollars format. The last question you have to answer is how many decimal places you want displayed. The default is zero decimal places, and for your $150,000 value, zero is a good choice. Press RETURN to accept zero decimal places. From now on, any value entered into cell D3 will be displayed in Dollars format (Figure 4-5).

FIGURE 4—5

```
File: Sales Proj.                REVIEW/ADD/CHANGE              Escape: Main Menu
========A========B========C========D========E========F========G========H====
  1|          Hot & Cold Inc.
  2|
  3|Annual Sales Forecast =     $150,000
  4|
  5|
  6|
  7|
  8|
  9|
 10|
 11|
 12|
 13|
 14|
 15|
 16|
 17|
 18|
--------------------------------------------------------------------------------
D3: (Value, Layout-DO) 150000

Type entry or use @ commands                                        @-? for Help
```

Changing the Label Data Format

Type the months of the year in cells A6 through A17. (Type **January** in A6, **February** in A7, and so forth.) If you want to save a little bit of time, you can press the down-arrow key instead of the RETURN key at the end of each label. Notice that AppleWorks normally left-justifies your label entries—that is, each label starts at the left edge of its cell. You can change this format for any cell or group of cells.

After you are through typing the last label, "December," move your cursor back to cell A6. Type **⌘-L**, the Layout command. At the bottom of your screen, AppleWorks is asking you what portion of your spreadsheet you want to change. You can change the way data are displayed for a single cell, one or more rows of cells, one or more columns of cells, or a block of cells. You want to change the display format of the block of cells containing the 12 months, so type **B** for Block (*don't* press the RETURN key). AppleWorks now tells you to use your cursor to highlight the block of cells whose format you want to change. Use the down-arrow key to highlight all 12 months and then press RETURN.

This time, when AppleWorks shows you the three types of layouts, type **L** for Label format and don't press RETURN. Now you see the four choices for Label format: Left-justify, Right-justify, Center, and Standard. Type **R** for Right-justify and compare your screen with Figure 4-6.

FIGURE 4—6

```
File: Sales Proj.              REVIEW/ADD/CHANGE              Escape: Main Menu
========A========B========C========D========E========F========G========H=====
  1|         Hot & Cold Inc.
  2|
  3|Annual Sales Forecast =    $150,000
  4|
  5|
  6|  January
  7| February
  8|    March
  9|    April
 10|      May
 11|     June
 12|     July
 13|   August
 14|September
 15|  October
 16| November
 17| December
 18|
--------------------------------------------------------------------------------
A6: (Label, Layout-R) January

Type entry or use @ commands                                        @-? for Help
```

Copying a Cell

You would like to add "Sales =" in the cells following each of the months. Move your cursor to cell B6. You want to start your labels in column B with a space because all the months are right-justified in column A. But if you try to type a space as the first character in your label, your Apple will just beep at you. In order to begin your label with a space, you must first type the quote symbol. This tells AppleWorks you are typing a label, and you can then type the space, followed by "Sales = ." Try it.

You could type the same label 11 more times in cells B7 through B17, but there is a much faster way to do the same thing. Leave your cursor on cell B6 and type **-C**, the Copy command. Three options for the Copy command are shown on the bottom line of your screen. Type **W** to select **Within worksheet** (don't press the RETURN key yet). AppleWorks asks you to highlight the cell or cells you wish to copy *from*. Since you only want to copy from cell B6 and it's already highlighted, just press RETURN.

You are now asked to highlight the cell or cells you wish to copy *to*. This is a three-step process:

1. Use the arrow keys to move the cursor to the *first* of the cells you want to copy to. In this example, you would move your cursor to cell B7 by pressing the down-arrow key once.
2. Press the period (".") key, which tells AppleWorks that you are going to specify a number, or range, of cells instead of just one cell. (*Note:* If you were copying to only one cell, you would press the RETURN key at this point and ignore Step 3.)
3. Use the arrow keys to highlight *all* the cells you want to copy to. In this example, press the down-arrow key ten times so that cells B7 through B17 are highlighted. Finally, press the RETURN key. AppleWorks copies the contents of cell B6 into cells B7 through B17, as shown in Figure 4-7.

Typing Calculations into Cells

AppleWorks allows five kinds of mathematical operations: addition (23 + 652), subtraction (47 - 12), multiplication (4*15), division (73/1.2), and exponentiation or raising to a power (3 ^ 4). The first four operations are straightforward. In the exponentiation example, the value 3 is being raised to the fourth power (yielding 81).

FIGURE 4—7

```
File: Sales Proj.              REVIEW/ADD/CHANGE              Escape: Main Menu
========A========B========C========D========E========F========G========H====
  1|          Hot & Cold Inc.
  2|
  3|Annual Sales Forecast =    $150,000
  4|
  5|
  6|  January Sales =
  7| February Sales =
  8|    March Sales =
  9|    April Sales =
 10|      May Sales =
 11|     June Sales =
 12|     July Sales =
 13|   August Sales =
 14|September Sales =
 15|  October Sales =
 16| November Sales =
 17| December Sales =
 18|
--------------------------------------------------------------------------------
B6: (Label)  Sales =

Type entry or use @ commands                                      @-? for Help
```

In any calculation, the standard rules for the "order of operations" apply. That is, in a string of operations, exponentiation is performed first, then multiplication and division, and lastly addition and subtraction. As an example, 2 + 27/3 2 evaluates to 5. Parentheses are allowed.

In your spreadsheet, the sales projection for January is calculated by multiplying the percentage of yearly sales for January times the projected annual sales value of $150,000. Table 4-1 shows the percentage of annual sales for each of the 12 months. To compute the sales projection for January, move your cursor to cell C6. From Table 4-1 you see that January's percentage of annual sales is 9.5 percent, or .095, of $150,000. But instead of multiplying .095 times 150000, you will tell AppleWorks to compute the value of cell C6 by multiplying .095 times the contents of cell D3—remember, D3 contains the 150000 value. The symbol AppleWorks uses for multiplication is the asterisk ("*"). With your cursor in cell C6, type **.095*D3** and press RETURN. (*Note:* If you try to type **D3*.095**, Appleworks will treat your entry as a *label*. The reason for this is that the first character is the letter "D," so AppleWorks thinks that you are typing a label. To avoid this misunderstanding, start your calculation with a plus sign, +D3*.095.)

AppleWorks computes the result of your calculation, 14250, and puts it in cell C6. Ignore the format of the value for the moment, and type in the calculations for the remaining 11 months in cells C7 through C17 (Figure 4-8).

TABLE 4—1

Month	Percentage	Decimal
January	9.5	.095
February	8.5	.085
March	5.0	.050
April	5.5	.055
May	6.5	.065
June	10.0	.100
July	11.5	.115
August	8.0	.080
September	6.0	.060
October	8.5	.085
November	10.5	.105
December	10.5	.105

FIGURE 4—8

```
File: Sales Proj.                REVIEW/ADD/CHANGE              Escape: Main Menu
========A========B========C========D========E========F========G========H====
  1|          Hot & Cold Inc.
  2|
  3|Annual Sales Forecast =     $150,000
  4|
  5|
  6|  January Sales =      14250
  7| February Sales =      12750
  8|    March Sales =       7500
  9|    April Sales =       8250
 10|      May Sales =       9750
 11|     June Sales =      15000
 12|     July Sales =      17250
 13|   August Sales =      12000
 14|September Sales =       9000
 15|  October Sales =      12750
 16| November Sales =      15750
 17| December Sales =      15750
 18|
--------------------------------------------------------------------------------
C17: (Value) .105*D3

Type entry or use @ commands                                    @-? for Help
```

Changing the Value Format for All Cells

Since the only values you have in this spreadsheet are dollar values, you can change the Standard Values setting for Value format to Dollars for every value cell in your spreadsheet. When you begin a new spreadsheet, AppleWorks chooses default Standard Values for Value format, Label format, Column width, Protection, and Recalculation. If you scroll

to the end of the Help screen, you'll see a listing of those default settings. The default choice for all cells with values is: **Appropriate**. This format displays numbers, right-justified in their cells, with as many decimal places as you type in.

To change this format for all value cells in your spreadsheet, type ⌘ **-V**, the Standard Values command. Type **V** to select Value format, then type **D** for Dollars. Press RETURN to accept zero decimal places, and all value cells in your spreadsheet will display their numbers in Dollars format (Figure 4-9). If you decide later that you want these cells to display the Standard Values setting, use the Layout command (⌘ -L) to change their format to "Standard."

Note: If you use the Layout command, ⌘ -L, to change the display format of one or more cells, then changing Standard Values will *not* affect those cells.

FIGURE 4—9

```
File: Sales Proj.                REVIEW/ADD/CHANGE              Escape: Main Menu
========A========B========C========D========E========F========G========H====
  1|          Hot & Cold Inc.
  2|
  3|Annual Sales Forecast =     $150,000
  4|
  5|
  6|  January Sales =  $14,250
  7| February Sales =  $12,750
  8|    March Sales =   $7,500
  9|    April Sales =   $8,250
 10|      May Sales =   $9,750
 11|     June Sales =  $15,000
 12|     July Sales =  $17,250
 13|   August Sales =  $12,000
 14|September Sales =   $9,000
 15|  October Sales =  $12,750
 16| November Sales =  $15,750
 17| December Sales =  $15,750
 18|
--------------------------------------------------------------------------------
C17: (Value) .105*D3

Type entry or use @ commands                                        @-? for Help
```

Looking at Calculations

AppleWorks will show you the calculations you have entered in various cells. Type ⌘ **-Z**, the Zoom command, and look at cells C6 through C17 (Figure 4-10).

FIGURE 4—10

```
File: Sales Proj.              REVIEW/ADD/CHANGE              Escape: Main Menu
========A========B========C========D========E========F========G========H=====
  1|          Hot & Cold Inc.
  2|
  3|Annual Sales Forecast =    150000
  4|
  5|
  6|  January Sales = .095*D3
  7| February Sales = .085*D3
  8|    March Sales = .05*D3
  9|    April Sales = .055*D3
 10|      May Sales = .065*D3
 11|     June Sales = .1*D3
 12|     July Sales = .115*D3
 13|   August Sales = .08*D3
 14|September Sales = .06*D3
 15|  October Sales = .085*D3
 16| November Sales = .105*D3
 17| December Sales = .105*D3
 18|
--------------------------------------------------------------------------------
C17: (Value) .105*D3

Type entry or use @ commands                                    @-? for Help
```

The Purpose of It All

Right now, if you've never worked with a spreadsheet before, you're probably saying to yourself, "Interesting, but what's it all for?"

What you've done in this spreadsheet is to define each monthly sales value as a percentage of the "Annual Sales Forecast," a value in cell D3. The power of a spreadsheet is that if you change that one value in cell D3, all 12 monthly sales values will change along with it.

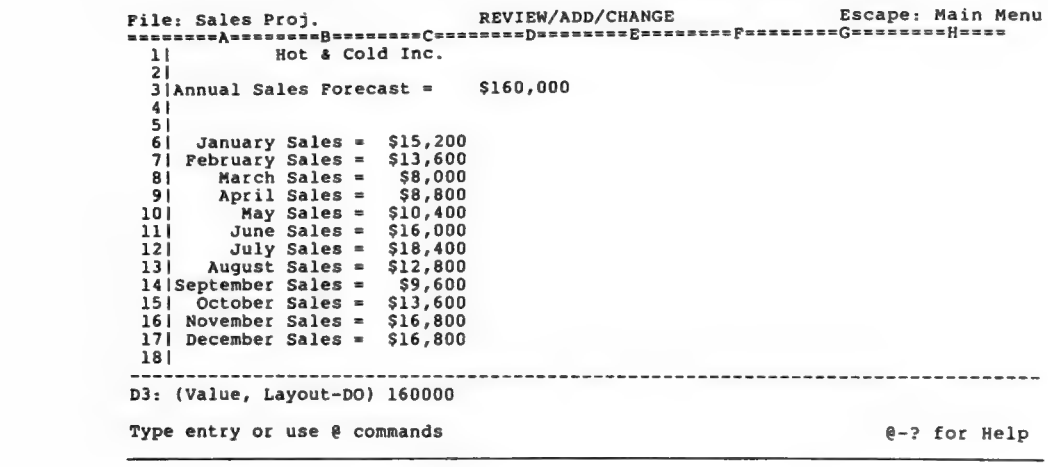
If you're still looking at the calculations in cells C6 through C17, type ⌘ -Z again so that those cells display dollar values (Figure 4-9). Move your cursor to cell D3, and type a different value for the "Annual Sales Forecast," say, "160000" (don't type a dollar sign or a comma). As you press the RETURN key, watch the values in cells C6 through C17 change automatically (Figure 4-11).

Changing Column Width

With your cursor still in cell D3, type in a value of 1000000, and see what happens (Figure 4-12). Instead of $1,000,000 appearing in cell D3, there is a row of "#" characters.

AppleWorks is telling you that the formatted value requires more spaces to display than are available. The value, $1,000,000, is 10 charac-

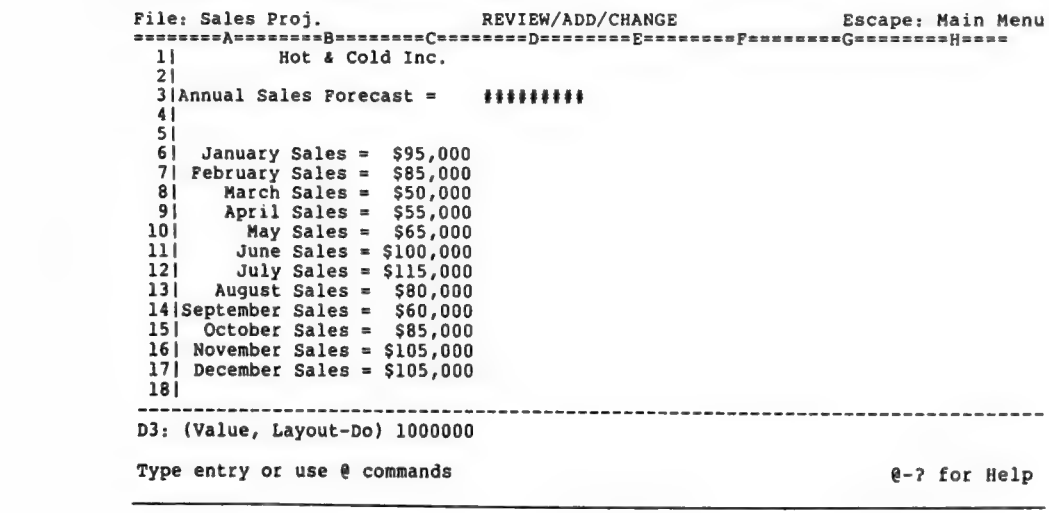
FIGURE 4—11



```
File: Sales Proj.                REVIEW/ADD/CHANGE              Escape: Main Menu
========A========B========C========D========E========F========G========H====
  1|          Hot & Cold Inc.
  2|
  3|Annual Sales Forecast =     $160,000
  4|
  5|
  6|  January Sales =  $15,200
  7| February Sales =  $13,600
  8|    March Sales =   $8,000
  9|    April Sales =   $8,800
 10|      May Sales =  $10,400
 11|     June Sales =  $16,000
 12|     July Sales =  $18,400
 13|   August Sales =  $12,800
 14|September Sales =   $9,600
 15|  October Sales =  $13,600
 16| November Sales =  $16,800
 17| December Sales =  $16,800
 18|
--------------------------------------------------------------------------------
D3: (Value, Layout-DO) 160000

Type entry or use @ commands                                      @-? for Help
```

FIGURE 4—12



```
File: Sales Proj.                REVIEW/ADD/CHANGE              Escape: Main Menu
========A========B========C========D========E========F========G========H====
  1|          Hot & Cold Inc.
  2|
  3|Annual Sales Forecast =     #########
  4|
  5|
  6|  January Sales =  $95,000
  7| February Sales =  $85,000
  8|    March Sales =  $50,000
  9|    April Sales =  $55,000
 10|      May Sales =  $65,000
 11|     June Sales = $100,000
 12|     July Sales = $115,000
 13|   August Sales =  $80,000
 14|September Sales =  $60,000
 15|  October Sales =  $85,000
 16| November Sales = $105,000
 17| December Sales = $105,000
 18|
--------------------------------------------------------------------------------
D3: (Value, Layout-Do) 1000000

Type entry or use @ commands                                      @-? for Help
```

ters wide (actually it requires 11 characters), and column D is only 9 characters wide. Rather than chop off a character from one end of the value, AppleWorks fills the cell with #########.

You need to increase the width of column D to 11 characters (10 characters for the formatted value plus one extra space), at least. You can do this with the Layout command, ⌘-L. With your cursor in cell D3,

type ⌘ -L and then type **C** to select Columns layout. AppleWorks highlights all of column D and asks you to use the left- and right-arrow keys to highlight additional columns to the left or right of column D. Since you only want to change the width of one column, column D, just press the RETURN key.

AppleWorks now asks you to select the type of layout you want to alter. Type **C** to select Column Width (don't press RETURN yet). You can now change the width of column D by holding down the OPEN-APPLE key while you press either the left- or right-arrow keys. The left-arrow key makes the column narrower; the right-arrow key makes it wider.

If you increase the width of column D to 11 spaces, or more, you'll see the string of ######### characters replaced by the actual value. When you've finished altering the width of column D, press RETURN.

Printing Your Spreadsheet

Before you print out your spreadsheet, I'd like you to look at the Printer Options for this application. Type ⌘ -O (Figure 4-13). All 11 options work exactly as they did in the Data Base Printer Options section (see Chapter 3). The Report Header consists of a line containing the spreadsheet name and the page number, an optional date line (you can enter a date when you actually print the spreadsheet), and a blank line.

FIGURE 4—13

```
File: Sales Proj.                PRINTER OPTIONS        Escape: Review/Add/Change
================================================================================

-------Left and right margins--------      ------Top and bottom margins-------
PW: PLaten Width          8.0 inches      PL: Paper Length          11.0 inches
LM: Left Margin           0.0 inches      TM: Top Margin             0.0 inches
RM: Right Margin          0.0 inches      BM: Bottom Margin          0.0 inches
CI: Chars per Inch         10             LI: Lines per Inch         6

Line width                8.0 inches          Printing length       11.0 inches
Char per line (est)       80                  Lines per page        66

      ------------------------Formatting options---------------------
      SC:  Send Special Codes to printer                          No
      PH:  Print report Header at top of each page                Yes
           Single, Double or Triple Spacing (SS/DS/TS)            SS



--------------------------------------------------------------------------------
Type a two letter option code                                      54K Avail.
```

You can leave the Printer Options as they are for this spreadsheet example, so press ESC to return to your spreadsheet. Type ⌘-P, the Print command, and look at the bottom of your screen. AppleWorks is asking you which part of your spreadsheet you want to print. You can print all of it, one or more adjacent rows, one or more adjacent columns, or a block of adjacent cells. Type **A** for All.

The Print screen contains two useful pieces of information in addition to a list of places for you to print your spreadsheet (Figure 4-14). The first piece of information is that your spreadsheet is 38 characters wide. This number makes sense if you remember that the first three columns, A, B, and C, were each 9 characters wide, while column D was increased to 11 characters wide.

The second piece of information is that your printer is currently set to print a maximum of 80 characters per line. This value is controlled by the first four Printer Options: **Left Margin**, **Right Margin**, **Platen Width**, and **Characters per Inch**. Since your printer can print up to 80 characters per line and your spreadsheet is only 38 characters wide, your printer won't have any problem printing out your entire spreadsheet.

Select your printer from the list (it's probably choice 1). Because you left the Report Header option as "Yes," AppleWorks will ask you to type in a report date. The report date is optional, so you can either type in a date or just press RETURN. Finally, AppleWorks asks you how many copies of the spreadsheet you want. Press RETURN again to

FIGURE 4—14

```
File: Sales Proj.                    PRINT          Escape: Review/Add/Change
================================================================================

                    The information that you identified
                    is 38 characters wide.

                    The Printer Options values allow
                    80 characters per line.


                    Where do you want to print the report?

                    1.  My Printer
                    2.  The clipboard (for the Word Processor)
                    3.  A text (ASCII) file on disk
                    4.  A DIF (TM) file on disk



--------------------------------------------------------------------------------

Type number, or use arrows, then press Return                      54K Avail.
```

accept the default value of one copy, and your report will be printed. Notice that column letters and row numbers do not appear in your printed spreadsheet.

You might wonder what you could do if your spreadsheet were wider than 80 characters. Of the four Printer Options that affect the maximum number of characters per line that your printer will print, only the **Characters per Inch** option will help you to increase the characters per line value beyond 80. This is because the left and right margins are already set to zero, and, unless you have a wide carriage printer, the platen width cannot be changed. However, your printer probably *does* support font sizes other than 10 characters per inch. For example, most printers support 17 characters-per-inch printing (check your printer's manual for the font sizes that it supports).

Even with a value of 17 characters per inch, your printer, with a standard 8-inch platen, could only print a maximum of 136 characters per line. If you kept the column width for all columns in your spreadsheet set at 9 characters, that's about 15 columns (A through O). What happens if your spreadsheet is 20 columns wide, or more? AppleWorks will automatically divide your spreadsheet into sections, with the width of each section determined by the maximum number of characters per line which, in turn, is controlled by the first four Printer Options. And before you start to worry, columns are never split between sections.

A Special Function: Net Present Value

Because money depreciates in value over time (as a result of inflation and other factors), you might like to know how much money, in today's dollars, you would need in order to have the equivalent of your original $150,000 spread out over 12 months. The Net Present Value function, @NPV, will compute this for you. The function requires two arguments, a discount rate, and a range of values. (Arguments are discussed later in this chapter.) The general format is:

@NPV(discount rate,range)

(*Note:* If your value in cell D3 is not $150,000, change it back.)

Move your cursor to cell E10 and type, **Net Present Value**. (The label will extend into cell F10.) Let's assume that money depreciates at a rate of .5 percent, .005, per month. Place your cursor in cell G10, type **@NPV(.005,C6...C17)**, and press RETURN. The @NPV function tells you that you would need only $145,013, in today's money, to equal $150,000 spread over 12 months (Figure 4-15).

FIGURE 4—15

```
File: Sales Proj.                REVIEW/ADD/CHANGE                Escape: Main Menu
========A========B========C========D========E========F========G========H====
  1|          Hot & Cold Inc.
  2|
  3|Annual Sales Forecast =     $150,000
  4|
  5|
  6|  January Sales =  $14,250
  7| February Sales =  $12,750
  8|    March Sales =   $7,500
  9|    April Sales =   $8,250
 10|      May Sales =   $9,750          Net Present Value $145,013
 11|     June Sales =  $15,000
 12|     July Sales =  $17,250
 13|   August Sales =  $12,000
 14|September Sales =   $9,000
 15|  October Sales =  $12,750
 16| November Sales =  $15,750
 17| December Sales =  $15,750
 18|
--------------------------------------------------------------------------------
G10: (Value) @NPV(.005,C6...C17)

Type entry or use @ commands                                        @-? for Help
```

II. EXAMPLE 2: A WEEKLY EXPENSE REPORT FORM

Suppose that employees of your company, Hot & Cold Inc., took business trips, and you wanted to keep a record of their expenses. The Spreadsheet section of AppleWorks allows you to design an expense report form that will give you daily expenses, weekly totals for transportation, food, lodging, etc., and special features such as the average daily expense and the maximum daily dinner cost for the week.

Designing the Form

Your form needs separate columns for each day of the week, a column for weekly totals, a column for average daily expense, and a column for maximum daily expense.

You'll need to label rows for individual types of expenses such as "Airfare," "Taxi or Limousine," "Car Rental," "Lodging," "Breakfast," "Lunch," "Dinner," etc. You'll also need a row for daily totals.

Go to the Main Menu of AppleWorks and add a new spreadsheet file to your desktop called "Expense Report."

Figures 4-16a and 4-16b show rows and columns labeled in a typical expense report layout. While this is by no means the only way to display

FIGURE 4—16a

```
File: Expense Form                REVIEW/ADD/CHANGE                Escape: Main Menu
========A========B========C========D========E========F========G========H========
  1|                              HOT & COLD INC.: Expense Report
  2|
  3|Name:                                                        Week Ending:
  4|
  5|
  6|                    Mon       Tue       Wed       Thu       Fri       Sat       Sun
  7|
  8|Airfare
  9|Taxi or Limo
 10|Car Rental
 11|Lodging
 12|Breakfast
 13|Lunch
 14|Dinner
 15|Phone
 16|
 17|Daily Total
 18|
--------------------------------------------------------------------------------
A5:

Type entry or use @ commands                                          @-? for Help
```

FIGURE 4—16b

```
File: Expense Form                REVIEW/ADD/CHANGE                Escape: Main Menu
========H========I========J========K========L========M========N========O====
  1|
  2|
  3|Week Ending:
  4|
  5|                    Weekly    Daily     Daily
  6|Sat       Sun       Total     Average   Maximum
  7|
  8|
  9|
 10|
 11|
 12|
 13|
 14|
 15|
 16|
 17|
 18|
--------------------------------------------------------------------------------
H1

Type entry or use @ commands                                          @-? for Help
```

expense report data, it is the layout I'll be using to describe various spreadsheet features. So I recommend that you type the same labels in the same cells that you see in the two figures. This way, when I refer to a particular cell, it will correspond exactly to the same cell in your spreadsheet. You might wonder why I didn't skip rows between "Airfare," "Taxi," "Car Rental," etc. There are two reasons. First, I

wanted to be able to show all the rows on the screen at the same time. Second, when you print the spreadsheet, you can change the line spacing in Printer Options to double space.

Customizing the Form

You can do several things to improve the look of your spreadsheets.

CENTERING COLUMN HEADINGS

Labels used for column headings, like "Mon," "Tue," "Weekly Total," etc., usually look better if they are centered in their cells rather than left-justified. These labels are in rows 5 and 6 in your spreadsheet. To change the label format for these two rows, move your cursor to any cell in row 5 (A5, for example) and type ⌘-**L**, the Layout command. (Note that you choose the Layout command rather than the Standard Values command [⌘-V] because you only want to change the label format for *some* of the cells in your spreadsheet, not all of them.) At the bottom of your screen, AppleWorks is asking you to choose how you want to highlight the cells whose layout you want to change. Type **R** for Rows and don't press RETURN. AppleWorks highlights all of row 5. Press the down-arrow key once, and both rows, 5 and 6, will be highlighted. Now press the RETURN key. You've selected which rows you want to change, and AppleWorks is now asking which layout you want to change. Type **L** for Label format.

At last you see a choice of four Label formats: Left-justify, Right-justify, Center, and Standard. The first three are self-explanatory, while the fourth, Standard, means to change the Label format to whatever is the Standard Value for labels. Type **C** for Center.

You may not immediately see that there has been a change in the label format for rows 5 and 6, but look at the labels in columns J,K, and L (Figure 4-17), and compare them to the way those columns looked before you changed their format (Figure 4-16b). The effect of choosing Center format for column headings becomes even more apparent when you start filling in the form with values.

DRAWING A LINE ACROSS YOUR SPREADSHEET

Suppose you wanted to make row 7 a row of dashes. Move your cursor to cell A7 and try to type a string of dash characters. AppleWorks lets you type in one dash, but no more. When you typed the first dash, AppleWorks thought you were typing a negative *value*. And only one negative sign is allowed in a value cell.

FIGURE 4—17

```
File: Expense Form              REVIEW/ADD/CHANGE              Escape: Main Menu
========H========I========J========K========L========M========N========O====
  1|
  2|
  3|Week Ending:
  4|
  5|                      Weekly     Daily     Daily
  6|    Sat       Sun      Total    Average   Maximum
  7|
  8|
  9|
 10|
 11|
 12|
 13|
 14|
 15|
 16|
 17|
 18|
--------------------------------------------------------------------------------
H1

Type entry or use @ commands                                      @-? for Help
```

Press the ESC key to erase the dash and the value designation for cell A7. (*Note:* If you try to use the DELETE key you can erase the dash, but AppleWorks still thinks that A7 is a value cell. If you use the ESC key to cancel what you've been typing in a cell, the cell reverts to its former contents, if any.)

Now, before you type the first dash, type the quote symbol to tell AppleWorks that this cell is going to contain a label. Then type nine dashes and press RETURN.

You could do this for all the cells from A7 to L7, but there's an easier way. That's right, the Copy command. With your cursor still in cell A7, type ⌘-**C**. Type **W** to select Within worksheet. Press the RETURN key to indicate that the only cell you want to copy is the one that the cursor is in, A7. (*Note:* The cell or cells you want to copy *from* are called the *Source*. The cell, or cells, you want to copy *to* are called the *Destination*.) Press the right-arrow key once to move the cursor to the first of the cells you want to copy *to*, cell B7. Press the period key "." to tell AppleWorks that you're copying cell A7 into a range of cells starting with B7. Now use your right-arrow key to move the cursor to the last cell you want to copy to, L7. This action should highlight all the cells from B7 to L7. (*Note:* If you go too far, you can use the left-arrow key to "unhighlight" one or more cells.) Once you have the correct group of cells highlighted, press RETURN. The dashed line will be drawn all the way across your spreadsheet.

For practice, do the same thing in row 16, the blank row just above "Daily Total," but this time use the equals sign " = " character (Figure 4-18).

Note: Many of the functions of the spreadsheet require you to indicate a range of cells for the particular function to act on. The process for indicating a range is always the same. You move your cursor to the first cell in the range, press the period key, move the cursor to the last cell in the range, and press RETURN.

FIGURE 4—18

```
File: Expense Form              REVIEW/ADD/CHANGE              Escape: Main Menu
========A========B========C========D========E========F========G========H========
  1|                            HOT & COLD INC.: Expense Report
  2|
  3|Name:                                                          Week Ending:
  4|
  5|
  6|                       Mon       Tue       Wed       Thu       Fri       Sat
  7|-------------------------------------------------------------------------------
  8|Airfare
  9|Taxi or Limo
 10|Car Rental
 11|Lodging
 12|Breakfast
 13|Lunch
 14|Dinner
 15|Phone
 16|===============================================================================
 17|Daily Total
 18|
-------------------------------------------------------------------------------
A16: (Label) Repeated-=

Type entry or use @ commands                                        @-? for Help
```

PROTECTING THE CONTENTS OF CELLS

You can prevent accidental changes in your cells by "protecting" them. There are three types of protection: **Labels Only**, **Values Only**, and **Nothing**. Labels Only protection means that the only data you can type in are label data. In other words, you could replace a label in a Labels Only protected cell with another label, but not with a value. Values Only protection limits cell entries to Value data only. Nothing protection means that you cannot alter the contents of protected cells at all. (*Note:* The fourth option, **Anything**, is used to cancel protection.)

At this point, you can protect the entire spreadsheet from changes. Don't worry about all the blank cells; if a cell is empty, setting Protection has no effect on it. Move your cursor to cell A1 and type ⌘-**L**, the Layout command. Type **R** for Rows, and use the down-arrow key to highlight all the rows from 1 to 17. Press RETURN. Type **P** for

Protection, and then **N** to allow Nothing to be typed into any non-empty cell.

While it may not look as if anything has happened, try typing something into any cell that already has a label in it. Your Apple will just beep at you. Of course, you can type anything you want, Labels or Values, into empty cells; they are unaffected by the Protection feature.

If you do want to change the contents of a protected cell, you can temporarily turn off all protection with the Standard Values command, ⌘-V. One of the Standard Values is Protection, and if you select it, you can respond "Yes" or "No" to turn Protection on or off.

Hint: This might be a good time to save your spreadsheet (⌘ -S) to disk if you haven't done so already.

Moving Your Cursor around Your Spreadsheet

Because spreadsheets tend to get rather large, there are several methods available to help you to move your cursor quickly to a different part of your spreadsheet.

THE ARROW KEYS

You already know that your cursor is controlled by the four arrow keys, but you can also use the OPEN-APPLE key along with the arrow keys. When you hold down the OPEN-APPLE key as you press an arrow key, your cursor will move one whole screen in the direction of the arrow.

⌘ -1 THROUGH ⌘ -9

In the spreadsheet, ⌘ -1 through ⌘ -9 move your cursor in the vertical direction only. ⌘ -1 moves it to row 1; ⌘ -9 moves it to the last row in your spreadsheet. The other number keys move the cursor a proportional amount through the spreadsheet.

THE FIND COMMAND

The Find command, ⌘ -F, lets you locate a particular cell by giving either its coordinates or its label contents. (Find can't be used to locate a cell by its value.)

To move your cursor to location Z52, type ⌘ **-F**, then type **C** for Coordinates. Type the coordinates **Z52**, and press RETURN. Do it again, and this time use "A1" for the coordinates of the cell you want to Find. (*Note:* You'll have to erase the old coordinates, "Z52," before you can type "A1." You can type CONTROL-Y to do this.)

The second option of the Find command allows you to find a cell by specifying its label. AppleWorks begins searching your spreadsheet from the current position of your cursor. So, if you want to search the whole spreadsheet for a particular label, you have to move your cursor to cell A1 before you type ⌘-F. Let's try it.

With your cursor in cell A1, type ⌘-**F** and then **T** for Text. For comparison data, type **max**. AppleWorks moves your cursor to cell L6. Notice that the comparison is *not* case dependent. That is, AppleWorks doesn't pay attention to whether the letters are capitalized.

Setting Up the Calculations

Up to this point, you have been concerned with the appearance of your spreadsheet. Now you need to type in the formulas or calculations that will make your spreadsheet something more than just a report generator.

SPREADSHEET FUNCTIONS

Let's tell your spreadsheet how to compute the daily total of all the expenses ("Airfare," "Car Rental," etc.) for Monday. You want this value to appear in cell C17 so move your cursor there. Cell C17's value is the sum of cells C8+C9+C10+C11+C12+C13+C14+C15. And you could enter that sum as the calculation for cell C17. But there is a much easier way to represent the sum of a group of cells.

AppleWorks includes 14 special functions in the spreadsheet. Table 4-2 lists these functions along with brief descriptions and examples.

TABLE 4—2

Function	Argument	Example	Description/Result
@ABS	1 formula or cell	@ABS(G15 - H19)	Absolute value of the argument.
@AVG	cells or ranges of cells	@AVG(C6,C8,C9) @AVG(D17...D24)	Arithmetic average of cells in argument. Label and blank cells are not counted.
@CHOOSE	3 or more cells, or 1 cell and a range of cells	@CHOOSE(D3,G6 ...G9)	If D3 = 1, evaluates to G6. If D3 = 2, evaluates to G7. If D3 = 3, evaluates to G8. If D3 = 4, evaluates to G9.

@COUNT	cells or ranges of cells	@COUNT(B7...B15)	The number of value cells in the argument
@ERROR	none	@ERROR	Causes the word ERROR to appear in the cell and in all other cells that refer to it.
@IF	1 logical comparison and 2 formulas or cells	@IF(H9 < Q6,C4,C7)	If H9 *is* less than Q6, evaluates to C4. If H9 *is not* less than Q6, evaluates to C7.
@INT	1 formula or cell	@INT(C7)	Throws away anything after the decimal point.
@LOOKUP	1 formula and 1 range of cells	@LOOKUP(G5,K3...K8)	K3 to K8 form a lookup table for values in L3 through L8. The values in K3 to K8 *must* be in ascending order. If the value in G5 lies between K6 and K7, this function would return the value in L6.
@MAX	2 or more cells	@MAX(M4...M23)	Maximum value in argument.
@MIN	2 or more cells	@MIN(J12...Q12)	Minimum value in argument.
@NA	none	@NA	Causes the letters NA to appear in the cell and all other cells that refer to it.
@NPV	1 formula and 1 range cells	@NPV(K6,P2...W2)	Uses the value in K6 as a discount rate to compute Net Present Value for the range of cells, P2...W2.
@SQRT	1 formula or cell	@SQRT(V5*S17)	Computes the square root of the argument.
@SUM	2 or more cells	@SUM(D4...D15, D17)	Computes the sum of all cells in the argument, D4 through D15 plus D17.

With the exception of two of the functions, @NA and @ERROR, all functions have the same basic format. They all begin with an "@" symbol, followed by their name (in capital or small letters). Then, depending on the function, there are one or more values or cell coordinates (or ranges of cell coordinates) enclosed in parentheses. These values (or cell coordinates that refer to values) are called *arguments.* Since all functions are numerical (except for @NA and @ERROR), all arguments must be values or refer to values. Currently, there are no functions that work with labels.

Some functions such as @SQRT and @ABS take only one argument. @SQRT computes the square root of the value contained in its parentheses, while @ABS displays the absolute value of the single argument in its parentheses. Other functions take more than one argument, and some functions are designed to operate on a range of cells as an argument.

THE @SUM FUNCTION

To compute the sum of a group of cells in the same row or column, the function you want is the last one on the list, @SUM. With your cursor in cell C17, type the 5 characters, **@SUM(**. You have typed the name of the function and have opened the parentheses. You now have to indicate which cells you want the @SUM function to add. This range can be entered in one of two ways: by typing in the coordinates of the first and last cells in the range (separated by three periods), or by using the cursor to point at the first and last cells in the range. Let's use the second method.

Move your cursor up to cell C8 and press the period (".") key. This action defines cell C8 as the first of a range of cells. Look at the next-to-the-last line on your screen and compare it with Figure 4-19. Press the down-arrow key seven times, so that the range of cells from C8 to C15 is highlighted, and press RETURN. Close the parentheses by typing **)** and press RETURN again (Figure 4-20).

A zero appears in cell C17 because none of the cells from C8 to C15 have values. So let's type in a few values and watch what happens to cell C17. Before you start typing in values, change the Standard Value format to display numbers with two decimal places. Type **⌘-V**, then **V** for Value format, **F** for Fixed number of decimal places, and **2** (and RETURN) for the number of decimal places to be displayed. (Note the change in cell C17.)

Figure 4-21 shows sample data entered for Monday. Copy it into your spreadsheet and watch the effect each entry has on the "Daily Total" in C17.

FIGURE 4—19

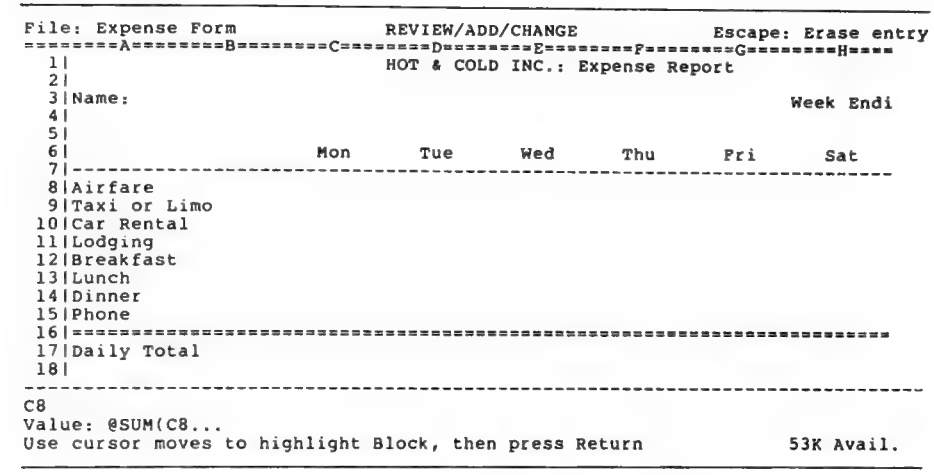


FIGURE 4—20

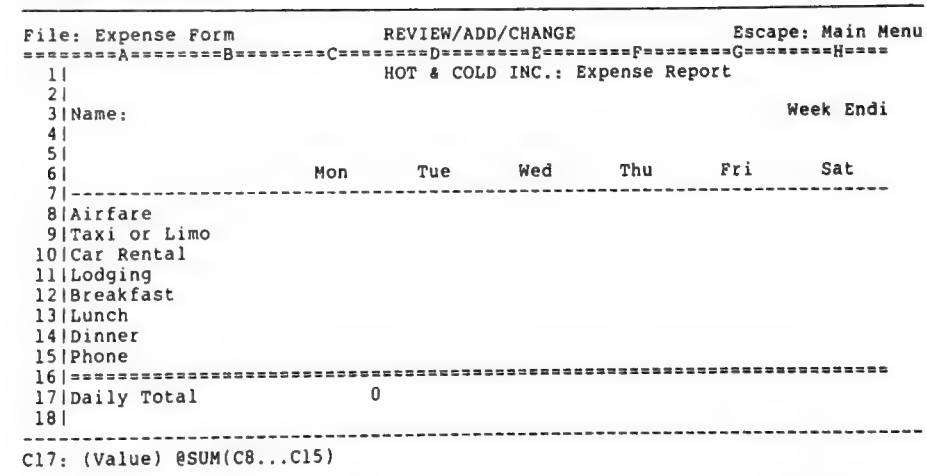


FIGURE 4—21

```
File: Expense Form              REVIEW/ADD/CHANGE              Escape: Main Menu
========A========B========C========D========E========F========G========H=====
  1|                            HOT & COLD INC.: Expense Report
  2|
  3|Name:                                                          Week Endi
  4|
  5|
  6|                      Mon       Tue       Wed       Thu       Fri       Sat
  7|-------------------------------------------------------------------------
  8|Airfare               275.00
  9|Taxi or Limo           20.00
 10|Car Rental
 11|Lodging                85.30
 12|Breakfast
 13|Lunch                   5.25
 14|Dinner                 21.50
 15|Phone                   6.32
 16|=========================================================================
 17|Daily Total           413.37
 18|
--------------------------------------------------------------------------------
C15: (Value) 6.32

Type entry or use @ commands                                    @-? for Help
```

Now fill in the rest of the entries for Tuesday, Wednesday, Thursday, and Friday from Figure 4-22. Ignore the "Daily Totals" for these days. I'll show you an easy way to enter those calculations in a moment.

COPYING FORMULAS OR CALCULATIONS

The formula you want for cell D17 is almost the same as the one in C17. The only difference is that the range of cells for D17's @SUM function is from D8 to D15 instead of from C8 to C15.

AppleWorks lets you copy calculations with the same command you used for copying labels, the Copy command, ⌘-C. You're going to copy the formula from cell C17 into cells D17 through J17. This will give you totals for all 7 days of the week and a grand total (in J17).

Place your cursor in cell C17 and type ⌘-C. Press **W** to select Within worksheet. Press the RETURN key to indicate that C17 is the only cell you wish to copy from. Now you want to highlight the range of cells you want to copy C17 into. Move your cursor to D17, press the period key, then move the cursor to cell J17; this highlights all the cells from D17 to J17. Press RETURN.

After you press RETURN, you'll see the formula for cell C17 in the next-to-the-last line on your screen. C8 is highlighted, and on the bottom line of the screen AppleWorks is asking whether this cell's coordinates should be constant ("No change") or "Relative."

This is a very important question and you'll see it every time you copy formulas from one cell to another. AppleWorks wants to know

FIGURE 4—22

```
File: Expense Form              REVIEW/ADD/CHANGE              Escape: Main Menu
========A========B========C========D========E========F========G========H=====
  1|                          HOT & COLD INC.: Expense Report
  2|
  3|Name:                                                          Week Endi
  4|
  5|
  6|                      Mon       Tue       Wed       Thu       Fri       Sat
  7|-------------------------------------------------------------------------
  8|Airfare              275.00                                    275.00
  9|Taxi or Limo          20.00                                     20.00
 10|Car Rental                                                     135.83
 11|Lodging               85.30     85.30     85.30     85.30
 12|Breakfast                       3.50      3.80      3.35      4.20
 13|Lunch                 5.25     10.50      8.25      7.40      8.50
 14|Dinner               21.50     19.35     12.90     35.85
 15|Phone                 6.32     15.72     14.95     11.53      9.20
 16|=========================================================================
 17|Daily Total          413.37
 18|
-------------------------------------------------------------------------------
G15: (Value) 9.2

Type entry or use @ commands                                    @-? for Help
```

whether the coordinates of the first cell in @SUM's range should change as the formula moves to cell D17, E17, and so forth, or if the C8 coordinates should remain the same. Depending on the individual situation, you may want to select one option or the other. In this case, you want the coordinates of the first (and the last) cell in the range to change relative to the cell that holds the formula. In other words, you want the formula in cell D17 to have the range D8 to D15, the formula in cell E17 to have the range E8 to E15, and so on. Therefore, press the "R" key to indicate Relative change (don't press RETURN).

The coordinates of the last cell in the range, C15, are then highlighted, and again you are asked if the coordinates of this cell should change or stay the same. Again press the "R" key for Relative. The formula in cell C17 is immediately copied into cells D17 through J17 (Figure 4-23).

Let's practice this procedure one more time. Move your cursor to cell J8 and define J8's value as the sum of cells C8 through I8. J8's formula should be **@SUM(C8...I8)**. (See Figure 4-24.)

Now copy the formula from cell J8 into cells J9 through J15. Leave your cursor in cell J8, type **⌘-C**, press the "W" key, then press the RETURN key. Move the cursor one cell down to J9, press the period key, move the cursor to cell J15, and press RETURN. Again, you want the cell coordinates in J8's formula to change Relative, so press the "R" key twice and compare your spreadsheet with Figure 4-25.

FIGURE 4—23

```
File: Expense Form              REVIEW/ADD/CHANGE              Escape: Main Menu
========A========B========C========D========E========F========G========H====
  1|                            HOT & COLD INC.: Expense Report
  2|
  3|Name:                                                          Week Endi
  4|
  5|
  6|                       Mon       Tue       Wed       Thu       Fri       Sat
  7|-------------------------------------------------------------------------------
  8|Airfare                275.00                                  275.00
  9|Taxi or Limo            20.00                                   20.00
 10|Car Rental                                                     135.83
 11|Lodging                 85.30     85.30     85.30     85.30
 12|Breakfast                          3.50      3.80      3.35      4.20
 13|Lunch                    5.25     10.50      8.25      7.40      8.50
 14|Dinner                  21.50     19.35     12.90     35.85
 15|Phone                   6.32     15.72     14.95     11.53      9.20
 16|===============================================================================
 17|Daily Total            413.37    134.37    125.20    143.43    452.73      0.00
 18|
--------------------------------------------------------------------------------
C17: (Value) @SUM(C8...C15)

Type entry or use @ commands                                    @-? for Help
```

FIGURE 4—24

```
File: Expense Form              REVIEW/ADD/CHANGE              Escape: Main Menu
========C========D========E========F========G========H========I========J====
  1|          HOT & COLD INC.: Expense Report
  2|
  3|                                                Week Ending:
  4|
  5|                                                                    Weekly
  6|   Mon       Tue       Wed       Thu       Fri       Sat       Sun    Total
  7|-------------------------------------------------------------------------------
  8|  275.00                                   275.00                        550.00
  9|   20.00                                    20.00
 10|                                           135.83
 11|   85.30     85.30     85.30     85.30
 12|             3.50      3.80      3.35      4.20
 13|    5.25     10.50      8.25      7.40      8.50
 14|   21.50     19.35     12.90     35.85
 15|    6.32     15.72     14.95     11.53      9.20
 16|===============================================================================
 17|  413.37    134.37    125.20    143.43    452.73      0.00      0.00    550.00
 18|
--------------------------------------------------------------------------------
J8: (Value) @SUM(C8...I8)

Type entry or use @ commands                                    @-? for Help
```

THE @AVG FUNCTION

Column K was set up to show the average daily expense for each category ("Airfare," etc.). There are two ways of calculating the average daily expense. One way is to add up all the airfare expenses, for example, and then divide by a constant number of days, either 5 or 7. The other way is to count only those days for which there was an expense in a particular category. So there would be only 2 days during

FIGURE 4—25

```
File: Expense Form                REVIEW/ADD/CHANGE                Escape: Main Menu
========C========D========E========F========G========H========I========J=====
  1|          HOT & COLD INC.: Expense Report
  2|
  3|                                                  Week Ending:
  4|
  5|                                                                      Weekly
  6|   Mon       Tue       Wed       Thu       Fri       Sat       Sun     Total
  7|-------------------------------------------------------------------------------
  8|  275.00                                   275.00                      550.00
  9|   20.00                                    20.00                       40.00
 10|                                           135.83                      135.83
 11|   85.30     85.30     85.30     85.30                                 341.20
 12|              3.50      3.80      3.35      4.20                        14.85
 13|   5.25     10.50      8.25      7.40      8.50                        39.90
 14|  21.50     19.35     12.90     35.85                                  89.60
 15|   6.32     15.72     14.95     11.53      9.20                        57.72
 16|===============================================================================
 17|  413.37    134.37    125.20    143.43    452.73      0.00      0.00  1269.10
 18|
--------------------------------------------------------------------------------
J8: (Value) @SUM(C8...I8)

Type entry or use @ commands                                      @-? for Help
```

which expenses were made for airfare, 4 days for lodging, 5 days for lunch, etc.

The @AVE function performs this second type of calculation automatically. It adds up all the values in the declared range (or ranges) and divides by the number of cells that actually hold values.

To compute the average daily expense for each category, move your cursor to cell K8 ("Daily Average for Airfare") and type in the formula, **@AVG(C8...I8)**. After you press RETURN, cell K8 should display a value of 275.00. This makes sense because the total airfare was 550.00 and was spent over two days, Monday and Friday. (*Note:* If you want the total averaged over five days, type zeroes in cells D8, E8, and F8.)

Now copy the formula from cell K8 into cells K9 through K15 (Figure 4-26). Again, this is a Relative copy.

THE @MAX FUNCTION

The last feature you wanted to include in your expense report form was a column that would show the maximum expense during the week for each category. In other words, it would show the greatest amount spent for dinner, the highest daily phone bill, and so forth.

The @MAX function performs this job neatly. You just specify the range of values to examine and @MAX displays the largest value in the range. Let's try it.

Move your cursor to cell L8 and type the formula **@MAX(C8...I8)**. Now, do a Relative copy of the formula in cell L8 into cells L9 through L15 and compare your spreadsheet with Figure 4-27.

FIGURE 4—26

```
File: Expense Form              REVIEW/ADD/CHANGE              Escape: Main Menu
========D========E========F========G========H========I========J========K====
  1|HOT & COLD INC.: Expense Report
  2|
  3|                                    Week Ending:
  4|
  5|                                                          Weekly    Daily
  6|   Tue       Wed       Thu       Fri       Sat       Sun   Total   Average
  7|-------------------------------------------------------------------------
  8|                                   275.00                   550.00   275.00
  9|                                    20.00                    40.00    20.00
 10|                                   135.83                   135.83   135.83
 11|    85.30     85.30     85.30                               341.20    85.30
 12|     3.50      3.80      3.35      4.20                     14.85     3.71
 13|    10.50      8.25      7.40      8.50                     39.90     7.98
 14|    19.35     12.90     35.85                               89.60    22.40
 15|    15.72     14.95     11.53      9.20                     57.72    11.54
 16|=========================================================================
 17|   134.37    125.20    143.43    452.73      0.00      0.00 1269.10
 18|
-------------------------------------------------------------------------------
K8: (Value) @AVG(C8...I8)

Type entry or use @ commands                                    @-? for Help
```

FIGURE 4—27

```
File: Expense Form              REVIEW/ADD/CHANGE              Escape: Main Menu
========E========F========G========H========I========J========K========L====
  1|D INC.: Expense Report
  2|
  3|                                Week Ending:
  4|
  5|                                                  Weekly    Daily    Daily
  6|   Wed       Thu       Fri       Sat       Sun   Total   Average  Maximum
  7|-------------------------------------------------------------------------
  8|                     275.00                       550.00   275.00   275.00
  9|                      20.00                        40.00    20.00    20.00
 10|                     135.83                       135.83   135.83   135.83
 11|    85.30     85.30                               341.20    85.30    85.30
 12|     3.80      3.35      4.20                     14.85     3.71     4.20
 13|     8.25      7.40      8.50                     39.90     7.98    10.50
 14|    12.90     35.85                               89.60    22.40    35.85
 15|    14.95     11.53      9.20                     57.72    11.54    15.72
 16|=========================================================================
 17|   125.20    143.43    452.73      0.00      0.00 1269.10
 18|
-------------------------------------------------------------------------------
L8: (Value) @MAX(C8...I8)

Type entry or use @ commands                                    @-? for Help
```

If you look at row 14, the "Dinner" category, you can see at a glance that while the average dinner expense was 22.40, the maximum was 35.85. If you were the kind of boss who questions expense items, you might want to inquire about that dinner expense.

By the way, the @MIN function works almost exactly like @MAX. @MIN displays the *lowest* value in a range. Blank cells and label cells, which might be in the range, are ignored.

Customizing the Display

You're going to print your spreadsheet in a moment, but first let's try to improve its appearance. Let's start by increasing the column width of the last three columns, J, K, and L. You adjusted the column width of a single column in the first example. Here, let's adjust all three columns at once.

Place your cursor anywhere in column J, and type ⌘ **-L**, the Layout command. Type **C** for Columns and column J will be highlighted. Before you press the RETURN key, hit the right-arrow key twice so that columns J, K, and L are all highlighted. Now press RETURN and then type **C** for Column Width. Hold down the OPEN-APPLE key and press the right-arrow key three times. This action increases the column width of each of the highlighted columns by three spaces. Press RETURN to indicate that you're through adjusting the column width.

Now let's change the Value format to display all the values in those same columns in Dollars format. With your cursor still in column J, type ⌘ **-L**, **C** for Columns, press the right-arrow key twice, and press RETURN. Again, columns J, K, and L should be highlighted. From the choice of layouts select Value format by pressing the "V" key. Type **D** for Dollars format and choose two decimal places. After you press RETURN, compare columns J, K, and L on your spreadsheet with those in Figure 4-28.

FIGURE 4—28

```
File: Expense Form              REVIEW/ADD/CHANGE              Escape: Main Menu
========F========G========H========I========J==========K==========L=========
  1|xpense Report
  2|
  3|                    Week Ending:
  4|
  5|                                                 Weekly      Daily      Daily
  6|   Thu       Fri       Sat       Sun            Total       Average    Maximum
  7|-------------------------------------------------------------------------------
  8|             275.00                             $550.00     $275.00    $275.00
  9|              20.00                              $40.00      $20.00     $20.00
 10|             135.83                             $135.83     $135.83    $135.83
 11|    85.30                                       $341.20      $85.30     $85.30
 12|     3.35     4.20                               $14.85       $3.71      $4.20
 13|     7.40     8.50                               $39.90       $7.98     $10.50
 14|    35.85                                        $89.60      $22.40     $35.85
 15|    11.53     9.20                               $57.72      $11.54     $15.72
 16|===============================================================================
 17|   143.43  452.73      0.00      0.00  $1,269.10
 18|
-------------------------------------------------------------------------------
J8: (Value, Layout-D2) @SUM(C8...I8)

Type entry or use @ commands                                      @-? for Help
```

Printing the Spreadsheet

Type ⌘ -P, the Print command, and then **A** to select All of your spreadsheet to be printed. Before you select your printer, look at the information in the first two lines of the Print screen (Figure 4-29). These two lines tell you that your spreadsheet is 117 characters wide (at least mine is) and that your printer is only set to print 80 characters per line. If you continue to print out your spreadsheet, AppleWorks will have to divide it into two parts, and you will have to paste them together to see the entire spreadsheet. (*Note:* AppleWorks will not split a column when it divides your spreadsheet into sections for printing.)

Let's try to change the number of characters per line that your printer will print, so that you can print the entire spreadsheet on one page. ESC out of the Print command and type ⌘ -**O** to enter Printer Options (Figure 4-13).

As I mentioned earlier, of the four printer options that affect the number of characters per line, only **Characters per Inch** (CI) can be used to *increase* the characters per line. (*Note:* If you have a wide-carriage printer, you can change **Platen Width** (PW), to 13.2 inches.) Since most printers support a font width of 17 characters per inch, let's change the **CI** option to 17. Type **CI**, press RETURN, type **17**, and press RETURN again. Notice that the characters-per-line indicator increased to 136.

As long as you're in Printer Options, why don't you change the line spacing to double spaced? Type **DS** and press RETURN. Finally, let's

FIGURE 4—29

```
File: Expense Form                    PRINT              Escape: Review/Add/Change
================================================================================

                The information that you identified
                is 117 characters wide.

                The Printer Options values allow
                80 characters per line


                Where do you want to print the report?

                1.  My Printer
                2.  The clipboard (for the Word Procesor)
                3.  A text (ASCII) file on disk
                4.  A DIF (TM) file on disk

--------------------------------------------------------------------------------

Type number, or use arrows, then press Return                        53K Avail.
```

eliminate the Report Header from your printed report. Type **PH** and press RETURN.

ESC back to Review/Add/Change, type **-P, A**, and look again at the two information lines on the Print screen. Your spreadsheet is still 117 characters wide, but now your printer will print 136 characters per line. Select your printer from the list by typing its number and pressing RETURN. Then press RETURN again to accept the default choice of one copy to be printed (Figure 4-30).

FIGURE 4—30

HOT & COLD INC.: Expense Report

Name: Week Ending:

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Weekly Total	Daily Average	Daily Maximum
Airfare	275.00				275.00			$550.00	$275.00	$275.00
Taxi or Limo	20.00				20.00			$40.00	$20.00	$20.00
Car Rental					135.83			$135.83	$135.83	$135.83
Lodging	85.30	85.30	85.30	85.30				$341.20	$85.30	$85.30
Breakfast		3.50	3.80	3.35	4.20			$14.85	$3.71	$4.20
Lunch	5.25	10.50	8.25	7.40	8.50			$39.90	$7.98	$10.50
Dinner	21.50	19.35	12.90	35.85				$89.60	$22.40	$35.85
Phone	6.32	15.72	14.95	11.53	9.20			$57.72	$11.54	$15.72
Daily Total	413.37	134.37	125.20	143.43	452.73	0.00	0.00	$1,269.10		

Editing Your Spreadsheet

INSERTING AND DELETING ROWS AND COLUMNS

You can add or remove one or more rows or columns in your spreadsheet. Suppose you wanted to insert a blank row between the row of equal signs (row 16) and the "Daily Total" row. You want this new blank row to be row 17, so move your cursor to any cell on the current row 17 (cell A17, for example) and type **-I**, the Insert command. Press **R** to select Rows to insert. You will probably see a warning message advising you that you are about to clear or remove protected cells. Actually, you're going to move a protected row, row 17, down to row 18. Just ignore the message and press the "Y" key to reassure AppleWorks that you *really* want to insert the row. You are now asked how many rows (a maximum of nine) you wish to insert. Type **1** and press Return.

When you insert columns or rows, AppleWorks automatically changes the cell coordinates in your formulas to reflect the shifting of all the rows *below* the row (or all the columns to the *right* of the column) that you have inserted.

Deleting a row or a column is just as easy. Let's delete the blank row you've just inserted. Put your cursor on a cell in row 17, the blank row, and type ⌘ **-D**, the Delete command. Type **R** for Rows, and row 17 will be highlighted. (*Note:* If you wanted to delete more than one row, you could use the up- or down-arrow key to highlight additional rows.) Press the RETURN key and the highlighted row or rows are removed.

Columns are inserted or deleted using the same commands, ⌘ **-I** or ⌘ **-D**, but responding "C" for Columns instead of "R" for Rows.

BLANKING CELLS

AppleWorks allows you to "empty" the contents of cells, either one at a time or in groups. The Blank command, ⌘ -B, has four options.

The first option, **Entry**, erases the contents of the cell your cursor was on when you issued the Blank command. The second option, **Rows**, will erase the contents of all the cells in the row your cursor is on. You can use the up- or down-arrow key to select more than one row to be blanked. Selected rows appear highlighted before the return key is pressed. The third option, **Columns**, blanks all of the cells in the column your cursor is in. As with the **Row** option, you can use arrow keys, left and right this time, to select more than one column to be blanked. Option four is the **Block** option. It allows you to select part of a row or column, or parts of adjacent rows or columns. With this option, all four arrow keys may be used to highlight the group of cells you wish to blank.

With all four options, if you attempt to blank a protected cell, AppleWorks will warn you and ask that you verify your intention. If you decide not to blank any cells, just press ESC.

EDITING THE CONTENTS OF A SINGLE CELL

Sometimes you want to make a small change in a cell containing a long formula. Rather than type the whole formula in again, you can use the Editing Mode command, ⌘ -U. To edit the contents of a cell, place your cursor on the cell and type ⌘ **-U**. The contents of the cell appear on the next-to-the-bottom line of your screen. You can then use either the insert cursor or the overstrike cursor to make changes to the entry. You can also use the DELETE key. Pressing RETURN makes the changes permanent.

If you press ESC, you'll get out of Editing Mode and leave the cell's contents unchanged.

Editing Mode works just as well on protected cells as it does on unprotected ones. In other words, protecting a cell does not prevent it from being changed with the Editing Mode command.

Looking at Two Parts of Your Spreadsheet at Once

There are two ways to see two separate areas of your spreadsheet on your screen at the same time, by "fixing" the titles and by "windowing."

FIXED TITLES

Your expense report form is too big for you to see all of it on your screen. As you scroll your cursor to the right to look at the "Weekly Totals" column, for example, the category titles in columns A and B are pushed off the screen at the left.

Appleworks provides a way to "fix" the titles in columns A and B so that they remain on the screen as you scroll to the right. To demonstrate this feature, move your cursor to a cell in column C (the column to the right of the last column you want to fix) and type the Titles command, ⌘-**T**. You can fix the top row (or rows), the left-most column (or columns), or both. Type **L** for Left Side. Now move your cursor over to column L and watch what happens (Figure 4-31).

To remove Fixed Titles, type ⌘-**T** again and press RETURN.

FIGURE 4—31

```
File: Expense Form              REVIEW/ADD/CHANGE              Escape: Main Menu
========A========B========H========I=========J==========K==========L======
  1|
  2|
  3|Name:              Week Ending:
  4|
  5|                                              Weekly       Daily       Daily
  6|                        Sat       Sun         Total       Average     Maximum
  7|-------------------------------------------------------------------------------
  8|Airfare                                      $550.00      $275.00     $275.00
  9|Taxi or Limo                                  $40.00       $20.00      $20.00
 10|Car Rental                                   $135.83      $135.83     $135.83
 11|Lodging                                      $341.20       $85.30      $85.30
 12|Breakfast                                    $14.85        $3.71       $4.20
 13|Lunch                                       $39.90        $7.98      $10.50
 14|Dinner                                      $89.60       $22.40      $35.85
 15|Phone                                       $57.72       $11.54      $15.72
 16|===============================================================================
 17|Daily Total            0.00      0.00    $1,269.10
 18|
-------------------------------------------------------------------------------
L17

Type entry or use @ commands                                        @-? for Help
```

WINDOWS

The second method for displaying two different parts of your spreadsheet on the screen at the same time is called *windowing*. You can divide your screen, either horizontally or vertically, into two areas and display a different section of your spreadsheet in each area.

To see how this works, first make sure you have removed any Fixed Titles you might have set. Then move your cursor about halfway across the screen and type ⌘ **-W**, the Windows command. Press **S** for Side by Side Windows, and look at your screen and Figure 4-32. Notice that your spreadsheet display area has been divided vertically. You now have two, smaller areas to view your spreadsheet, each with its own set of row numbers and column letters. Your cursor is in the right-hand area.

FIGURE 4—32

```
File: Expense Form            REVIEW/ADD/CHANGE              Escape: Main Menu
========A========B========C========D=========E========F========G====
  1|                          HOT & COL  1|D INC.: Expense Report
  2|                                     2|
  3|Name:                                3|
  4|                                     4|
  5|                                     5|
  6|                    Mon       Tue    6|   Wed       Thu       Fri
  7|-----------------------------------  7|-------------------------
  8|Airfare           275.00             8|                      275.00
  9|Taxi or Limo       20.00             9|                       20.00
 10|Car Rental                          10|                      135.83
 11|Lodging            85.30     85.30 11|    85.30     85.30
 12|Breakfast                    3.50 12|     3.80      3.35      4.20
 13|Lunch              5.25     10.50 13|     8.25      7.40      8.50
 14|Dinner            21.50     19.35 14|    12.90     35.85
 15|Phone              6.32     15.72 15|    14.95     11.53      9.20
 16|=================================== 16|=========================
 17|Daily Total       413.37    134.37 17|   125.20    143.43    452.73
 18|                                    18|
-------------------------------------------------------------------------------
E9

Type entry or use @ commands                                    @-? for Help
```

Use the arrow keys to move the cursor around this area and see that the left-hand area is unaffected by scrolling movement in the right-hand area. When you want to switch your cursor over to the other area, type ⌘ **-J**, the Jump command.

If you use the down-arrow key and scroll up one of the displays, the other display does not follow it. But sometimes it is useful to have the two displays synchronized so that they move up and down together. Type ⌘ **-W** again and you'll see two different choices: One and Synchronized. Type **S** for Synchronized and the two displays will be locked together in their vertical movements.

To Unsynchronize the two displays, type ⌘ -W and press the "U" key. And to go back to a single window, type ⌘ -W and press the "O" key.

Splitting your window top and bottom works much the same way. You move your cursor about halfway down the screen, type ⌘ -W and press **T**, for Top and Bottom (Figure 4-33). Again, typing ⌘ -J Jumps your cursor between the top and bottom windows. And the Synchronize option makes the two windows scroll *horizontally* together.

You can cancel Top and Bottom Windows in the same way as Side by Side Windows. Type ⌘ -W and press the "O" key for One Window.

FIGURE 4—33

```
File: Expense Form              REVIEW/ADD/CHANGE              Escape: Main Menu
========A========B========C========D========E========F========G========H====
  1|                            HOT & COLD INC.: Expense Report
  2|
  3|Name:                                                          Week Endi
  4|
  5|
  6|                      Mon       Tue       Wed       Thu       Fri       Sat
  7|-------------------------------------------------------------------------
  8|Airfare              275.00                                    275.00
  9|Taxi or Limo          20.00                                     20.00
========A========B========C========D========E========F========G========H====
 10|Car Rental                                                     135.83
 11|Lodging               85.30     85.30     85.30     85.30
 12|Breakfast                       3.50      3.80      3.35      4.20
 13|Lunch                 5.25     10.50      8.25      7.40      8.50
 14|Dinner                21.50     19.35     12.90     35.85
 15|Phone                 6.32     15.72     14.95     11.53      9.20
 16|=========================================================================
 17|Daily Total          413.37    134.37    125.20    143.43    452.73      0.00
-------------------------------------------------------------------------------
A10: (Label, Protect-N) Car Renta

Type entry or use @ commands                                      @-? for Help
```

Manual Recalculation

You probably haven't noticed, but by now your spreadsheet is large enough so that you can actually watch AppleWorks recalculating all the formulas every time you type a value into a cell. To demonstrate this, move your cursor to cell H8 ("Airfare on Saturday") and enter a value of 100. Watch the screen closely as you press the RETURN key. Did you see at the bottom of your screen an indicator that said, "Calculating column," followed by a changing column letter? While AppleWorks is performing this recalculation, you can't do anything with your spreadsheet. The larger your spreadsheet gets, the longer the recalculation will take. With an average-sized spreadsheet, this recalculation can take anywhere from 2 to 10 seconds or more. After a while, it becomes tedious waiting for AppleWorks to recalculate every time you enter or change a value.

You can eliminate the wait by eliminating the automatic recalculation feature. The change from automatic to manual recalculation is one of the Standard Value options. Type ⌘ -**V** and press the "R" key for the Recalculate option. Type **F** for Frequency and then **M** for Manual recalculation.

Now you can enter values into your spreadsheet as fast as you can type, without waiting for AppleWorks to recalculate after each entry. When you do want a calculation of all the formulas in your spreadsheet, type ⌘ -**K**, the Calculate All Values command.

You can restore automatic recalculation to your spreadsheet by repeating the above process, starting with ⌘ -**V**, and typing **A** for the last keystroke instead of **M**. And you can remove the 100.00 value from cell H8 with the Blank command, ⌘ -B.

Arranging or Sorting Rows

The Arrange command, ⌘ -A, in the spreadsheet works in much the same way as it does in the data base. The command is used to organize a column (or part of a column) of entries, and it can arrange labels alphabetically or values numerically. *Note:* You cannot arrange the cells in a single column without affecting all the other cells in the rows.

Suppose you want the eight categories ("Airfare," "Car Rental," etc.) to appear in alphabetical order. (*Note:* You may want to save your spreadsheet before you try this command so that you can revert to the original version later.) You want to alphabetize rows 8 through 15 according to the label in column A. So, place your cursor in cell A8, the first of the cells you want to Arrange, and type ⌘ -**A**. You'll see the entire row 8 highlighted. Press the down-arrow key seven times so that rows 8 through 15 are all highlighted, then press RETURN (Figure 4-34). AppleWorks shows you four methods of arrangement, two for labels and two for values. Select option 1 (Figure 4-35).

Notice that not only were cells A8 through A15 arranged alphabetically, their entire rows (8 through 15) were arranged with them. When the rows were moved, AppleWorks automatically changed all the formulas that referred to any cell in any of the rows.

Moving Rows and Columns

The Move command, ⌘ -M, allows you to move either columns or rows from one place to another in your spreadsheet. Only entire rows or

FIGURE 4—34

```
File: Expense Form                    ARRANGE          Escape: Review/Add/Change
========A========B========C========D========E========F========G========H=====



                  Rows 8 through 15 will be arranged
                  based on the contents of column A

                  Arrangement order:

                        1.  Labels from A to Z
                        2.  Labels from Z to A
                        3.  Values from 0 to 9
                        4.  Values from 9 to 0


------------------------------------------------------------------------------

Type number, or use arrows, then press Return                      53K Avail.
```

FIGURE 4—35

```
File: Expense Form              REVIEW/ADD/CHANGE              Escape: Main Menu
========A========B========C========D========E========F========G========H=====
  1|                          HOT & COLD INC.: Expense Report
  2|
  3|Name:                                                          Week Endi
  4|
  5|
  6|                      Mon       Tue       Wed       Thu       Fri       Sat
  7|-------------------------------------------------------------------------
  8|Airfare             275.00                                    275.00
  9|Breakfast                        3.50      3.80      3.35      4.20
 10|Car Rental                                                    135.83
 11|Dinner               21.50     19.35     12.90     35.85
 12|Lodging              85.30     85.30     85.30     85.30
 13|Lunch                5.25     10.50      8.25      7.40      8.50
 14|Phone                6.32     15.72     14.95     11.53      9.20
 15|Taxi or Limo         20.00                                   20.00
 16|=========================================================================
 17|Daily Total         393.37    134.37    125.20    143.43    432.73      0.00
 18|
------------------------------------------------------------------------------
A8: (Label, Protect-N) Airfare

Type entry or use @ commands                                       @-? for Help
```

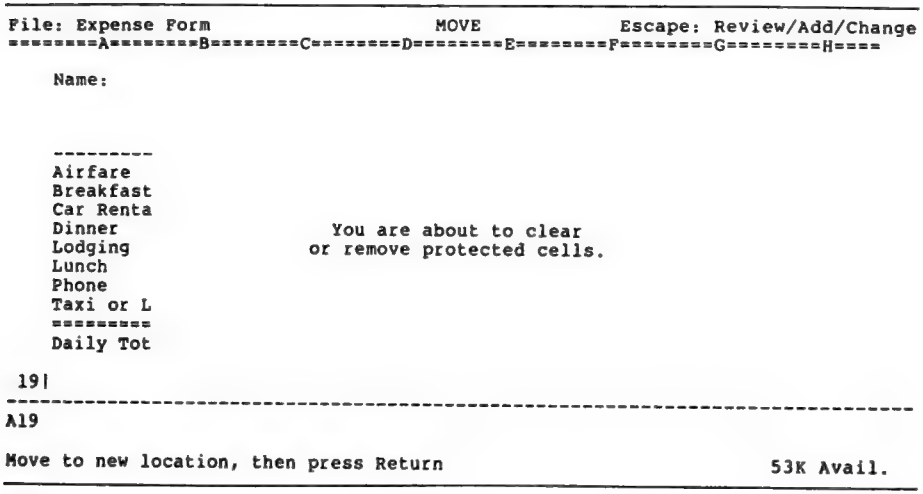
columns can be moved; you can't move individual cells with the Move command. (*Note:* You can copy individual cells. You just can't move them.)

Let's move rows 2 and 3 to the bottom of the spreadsheet. Place your cursor anywhere in row 2 (A2, for example), and type ⌘-M. Type **W** to select Within worksheet, then type **R** to indicate Rows. Row 2 is highlighted, and if you press the down-arrow key once, row 3 will be

highlighted, too. Press RETURN and you will see a warning that you are about to clear or remove protected calls. This message appears because you protected your entire spreadsheet earlier. Ignore it, and type **Y** for Yes, you really want to do this.

You'll see a single cell highlighted and the instruction at the bottom of your screen to move your cursor to a new location. Press the down-arrow key and keep pressing it until you see the row number, 19, appear (Figure 4-36). You are indicating where the *last* row of the rows you are moving will be placed. Press RETURN, and rows 2 and 3 will be moved to rows 17 and 18. That's right. The moved rows were inserted just *above* row 19, the row your cursor was on when you pressed RETURN.

FIGURE 4—36



Move your cursor back to cell A1 and compare your spreadsheet with Figure 4-37. As with the Arrange command, AppleWorks automatically changes cell coordinates in formulas when you move rows or columns in your spreadsheet.

Saving More Than One Version of a Spreadsheet

Just as with data base and word processing files, you may decide to make a small alteration on a spreadsheet and save it with a different file name. The Change Filename command, ⌘-N, lets you change the name of your spreadsheet so that when you save it onto your data disk, you won't erase the original version.

FIGURE 4—37

```
File: Expense Form              REVIEW/ADD/CHANGE              Escape: Main Menu
========A========B========C========D========E========F========G========H=====
  1|                          HOT & COLD INC.: Expense Report
  2|
  3|
  4|                      Mon       Tue       Wed       Thu       Fri       Sat
  5|-------------------------------------------------------------------------
  6|Airfare              275.00                                    275.00
  7|Breakfast                        3.50      3.80      3.35      4.20
  8|Car Rental                                                    135.83
  9|Dinner               21.50     19.35     12.90     35.85
 10|Lodging              85.30     85.30     85.30     85.30
 11|Lunch                 5.25     10.50      8.25      7.40      8.50
 12|Phone                 6.32     15.72     14.95     11.53      9.20
 13|Taxi or Limo         20.00                                     20.00
 14|=========================================================================
 15|Daily Total          393.37    134.37    125.20    143.43    432.73      0.00
 16|
 17|
 18|Name:                                                              Week Endi
-------------------------------------------------------------------------------
A1

Type entry or use @ commands                                        @-? for Help
```

III. EXAMPLE 3: SALES COMMISSIONS AND BONUSES

You may not realize it, but if you have been doing all of the exercises in this chapter, you have used every spreadsheet *command* at least once. In this third example, you'll use some different spreadsheet *functions*. But the real reason for this example is to give you more experience in creating a spreadsheet from scratch.

Designing Your Spreadsheet

You should ask yourself three questions before you type a single character into your spreadsheet:

1. What answers do I want from this spreadsheet?
2. What information do I have that will help me get the answers I want?
3. How would I go about calculating the answers I want from the information I have, if I *didn't* have a spreadsheet?

If you take the time to answer these three questions, you'll find that designing your spreadsheet is much easier. Let's try to answer these questions for the Sales Commissions and Bonuses example.

Suppose you had four salespersons working for your company, Hot & Cold Inc. Suppose you paid them each $1,000 per month plus commissions on their sales. As an incentive to your sales force, you have set up a sliding scale of commissions. If a salesperson sells up to $5,000 of your products in one month, he or she receives a commission of 10 percent of the sales. For sales between $5,000 and $10,000, the commission rises to 12.5 percent. If sales are over $10,000 in one month, the commission will be 15 percent.

To further motivate your salespersons, you award a monthly bonus of $100 to the one who has sold the most during the month.

ANSWER TO QUESTION 1

You want your spreadsheet to calculate the total monthly wages (salary, commission, and bonus) for your sales staff.

ANSWER TO QUESTION 2

The information you have is the total monthly sales values for each salesperson. You also know the commission schedule and how bonuses are paid.

ANSWER TO QUESTION 3

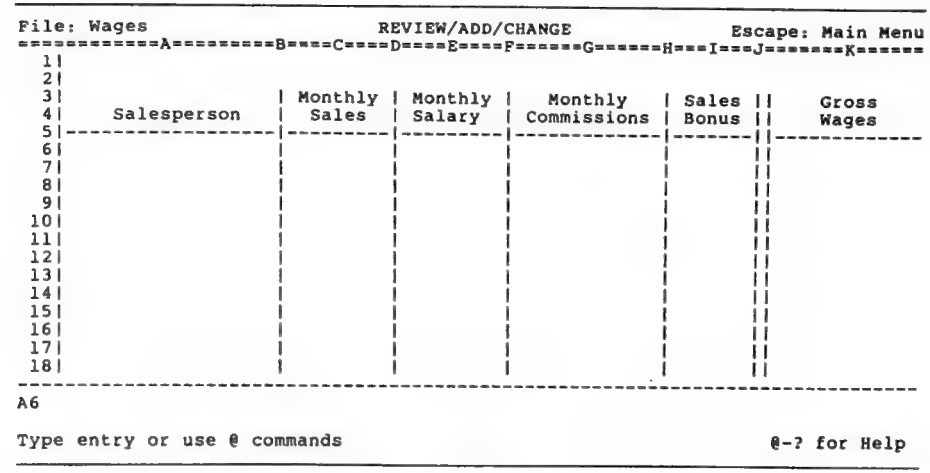
Each salesperson's monthly wages are computed by multiplying the appropriate commission rate (which depends on how much was sold that month) times the total sales value. This is then added to the salary ($1,000). If total sales are the highest among the four salespersons, $100 are added to the wages.

Laying out the Spreadsheet

The layout of any spreadsheet is largely a matter of personal preference. One approach is to dedicate individual rows to each salesperson, with columns labeled for names, monthly sales, salaries, commissions, bonuses, and gross wages. Figure 4-38 shows this layout.

As you can see, I've used the Layout command, ⌘-L, to change some of the column widths. Column A was expanded to 18 characters, and columns G and K were widened to 13 characters. Columns B, D, F, and H were reduced to a width of 1 character. The character in each of

FIGURE 4—38



these columns is a "|" symbol. These vertical lines improve the readability of the spreadsheet. Column J is 2 characters wide, and those 2 characters are "||."

All the labels in rows 3 and 4 have been centered with the Layout command. That is, their Label format has been changed to Centered.

Filling in the Spreadsheet

You now have columns for all the data you want to enter and for all the results you want the spreadsheet to compute for you. Let's put in some typical data. Figure 4-39 shows the monthly sales values and salaries for your four salespersons.

Let's change the Standard Value for Value format to Dollars with no decimal places. Type ⌘ **-V** (the Standard Values command), **V** (for Value format), **D** (for Dollars), and RETURN to accept zero decimal places (Figure 4-40).

Using a Lookup Table

Now you want to compute your salespersons' commissions. You want to multiply monthly sales by either 10, 12.5, or 15 percent, depending on how much was sold.

FIGURE 4—39

```
File: Wages                          REVIEW/ADD/CHANGE                    Escape: Main Menu
============A=========B====C====D====E====F======G======H===I===J=======K======
  1|
  2|
  3|                  | Monthly | Monthly |   Monthly    | Sales ||     Gross
  4|    Salesperson   |  Sales  |  Salary | Commissions  | Bonus ||     Wages
  5|------------------|---------|---------|--------------|-------||-------------
  6|Kate              |    7482 |    1000 |              |       ||
  7|                  |         |         |              |       ||
  8|Bob               |    5572 |    1000 |              |       ||
  9|                  |         |         |              |       ||
 10|John              |   11003 |    1000 |              |       ||
 11|                  |         |         |              |       ||
 12|Bruce             |    3780 |    1000 |              |       ||
 13|                  |         |         |              |       ||
 14|                  |         |         |              |       ||
 15|                  |         |         |              |       ||
 16|                  |         |         |              |       ||
 17|                  |         |         |              |       ||
 18|                  |         |         |              |       ||
-------------------------------------------------------------------------------
E12: (Value) 1000

Type entry or use @ commands                                        @-? for Help
```

FIGURE 4—40

```
File: Wages                          REVIEW/ADD/CHANGE                    Escape: Main Menu
============A=========B====C====D====E====F======G======H===I===J=======K======
  1|
  2|
  3|                  | Monthly | Monthly |   Monthly    | Sales ||     Gross
  4|    Salesperson   |  Sales  |  Salary | Commissions  | Bonus ||     Wages
  5|------------------|---------|---------|--------------|-------||-------------
  6|Kate              |  $7,482 |  $1,000 |              |       ||
  7|                  |         |         |              |       ||
  8|Bob               |  $5,572 |  $1,000 |              |       ||
  9|                  |         |         |              |       ||
 10|John              | $11,003 |  $1,000 |              |       ||
 11|                  |         |         |              |       ||
 12|Bruce             |  $3,780 |  $1,000 |              |       ||
 13|                  |         |         |              |       ||
 14|                  |         |         |              |       ||
 15|                  |         |         |              |       ||
 16|                  |         |         |              |       ||
 17|                  |         |         |              |       ||
 18|                  |         |         |              |       ||
-------------------------------------------------------------------------------
E12: (Value) 1000

Type entry or use @ commands                                        @-? for Help
```

One way of selecting the correct percentage is to use a *Lookup table*. A Lookup table *always* consists of two columns (or two rows) of values. In the first column (or row) you put a list of values in ascending order. In this example, the first column would contain the values 0, 5000, and 10000.

In the second column (or row) you would enter the lookup values—in this example, .10, .125, and .15. Figure 4-41 shows this Lookup table.

FIGURE 4—41

```
File: Wages                          REVIEW/ADD/CHANGE              Escape: Main Menu
========L========M========N========O========P========Q========R========S=====
  1|
  2|
  3|          Lookup Table
  4|
  5|            Sales    Percent
  6|           ----------------
  7|                $0      10.0%
  8|            $5,000      12.5%
  9|           $10,000      15.0%
 10|
 11|
 12|
 13|
 14|
 15|
 16|
 17|
 18|
--------------------------------------------------------------------------------
N9: (Value, Layout-P1) .15

Type entry or use @ commands                                        @-? for Help
```

(*Note:* Cells N7, N8, and N9 have had their Value format changed to Percent with one decimal place. The ⌘ -L command was used for this.)

The purpose of this Lookup table is to allow you to use the @LOOKUP function. This function takes one value (the search value) and compares it to the list of values in the *first* column of your Lookup table. The function returns a value from the *second* column, which is selected according to the following rule: @LOOKUP searches the first column for the largest value that is less than or equal to the search value. It then returns the value from the second column which is next to that value in the first column.

I know this is a bit confusing, so let's try an example to see how @LOOKUP works. Suppose your search value is $7,500. The largest value in the first column that is less than or equal to $7,500 is $5,000. Therefore, the @LOOKUP function would return a value of .125, or 12.5 percent, because this value is immediately to the right of the $5,000 value. If the search value is $4,500, @LOOKUP returns 10 percent, and so forth.

The format for the function is:

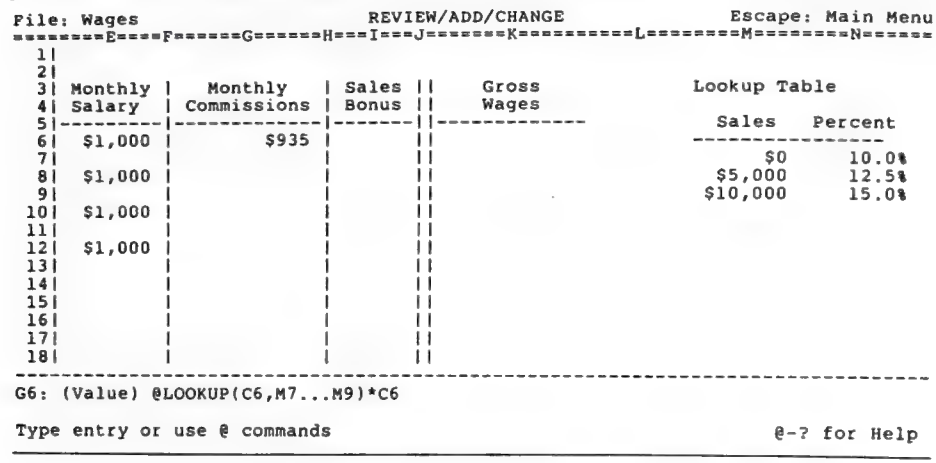
@LOOKUP(search value, first column list)

For the Lookup Table in Figure 4-41, the first column list is a range of values in cells M7 . . . M9. So the formula to find the amount of commission for Kate is:

@LOOKUP(C6,M7...M9)*C6

Enter this formula in cell G6 (Figure 4-42).

FIGURE 4—42



The formula for Bob's commission is almost the same. The only difference is that the sales value in cell C8 is used instead of the value in cell C6. Why don't you use the Copy command to copy the formula into cells C8, C10, and C12? With your cursor in cell C6, type **-C**. Type **W** (to select Within worksheet), then press RETURN to select only cell C6 as your copy source. Move your cursor to cell C8, press the period key ("."), move your cursor down to cell C12, and press RETURN. On the next-to-the-bottom line on your screen, C6 is highlighted. AppleWorks wants to know whether this cell's coordinates should remain constant (No Change) or change with the cell location (Relative). Press the "R" key once. Now M7 is highlighted. You want these and M9's coordinates to be constant, so press the "N" key twice. Finally, the last set of coordinates, C6, is highlighted. Press the "R" key to make these coordinates Relative.

You'll notice that you have two extra values in cells G9 and G11. Use the Blank command, -B, to erase the formulas from these cells.

Now use the Layout command, -L, to change the Value format in column G to Dollars with two decimal places. With your cursor in column G, type **-L**, **C** (for Columns), and press RETURN (to select only column G). Type **V** (for Value Format), **D** (for Dollars), **2** (for the number of decimal places), and press RETURN to accept. Compare your spreadsheet with Figure 4-43.

FIGURE 4—43

```
File: Wages                        REVIEW/ADD/CHANGE                    Escape: Main Menu
==========A=========B====C====D====E====F======G======H===I===J=======K======
  1|
  2|
  3|                  | Monthly  | Monthly  |   Monthly    | Sales ||    Gross
  4|    Salesperson   |  Sales   |  Salary  | Commissions  | Bonus ||    Wages
  5|------------------|----------|----------|--------------|-------||-------------
  6|Kate              |  $7,482  |  $1,000  |      $935.25 |       ||
  7|                  |          |          |              |       ||
  8|Bob               |  $5,572  |  $1,000  |      $696.50 |       ||
  9|                  |          |          |              |       ||
 10|John              | $11,003  |  $1,000  |    $1,650.45 |       ||
 11|                  |          |          |              |       ||
 12|Bruce             |  $3,780  |  $1,000  |      $378.00 |       ||
 13|                  |          |          |              |       ||
 14|                  |          |          |              |       ||
 15|                  |          |          |              |       ||
 16|                  |          |          |              |       ||
 17|                  |          |          |              |       ||
 18|                  |          |          |              |       ||
-------------------------------------------------------------------------------
G6: (Value, Layout-D2) @LOOKUP(C6,M7...M9)*C6

Type entry or use @ commands                                      @-? for Help
```

Using the @IF Command

Figuring out who gets the $100 bonus is easy. All you have to do is to look at column C. The salesperson with the highest value in column C gets the bonus. The trick is to get AppleWorks to make the selection for you.

You want to compare a particular value in column C with the *maximum* value of all the entries in column C. If the particular value is equal to the maximum value, then $100 should be put in the appropriate cell. If they're not equal, $0 should be put in the cell.

The @IF function is just what you need to accomplish this task. @IF has three parts. The first is a logical comparison; the second and third are values. If the comparison is *true*, the function evaluates to the first value. If the comparison is *false*, the second value is used. Here is an example: Consider the statement

@IF(A1 = B1,100,0)

This statement says that if the value in cell A1 is equal to the value in cell B1, use the value 100. If A1 does not equal B1, use the value 0.

In addition to equal to (=), there are five other logical comparisons that can be made: less than (<), greater than (>), less than or equal to (< =), greater than or equal to (> =), and not equal to (< >).

The comparison you want to make for cell I6, Kate's Sales Bonus, is between Kate's Monthly Sales, cell C6, and the maximum value of the range of cells from C6 to C12. If C6 is equal to the maximum value in the range C6 through C12, you want $100 in cell I6; otherwise you want a value of $0. You'll recall from the previous example that the function @MAX is used to select the maximum value from a range of cells. So your formula for cell I6 is

@IF(C6 = @MAX(C6...C12),100,0)

Place your cursor in cell I6, type the formula, and press RETURN. Cell I6 should evaluate to $0 (Figure 4-44).

FIGURE 4—44

```
File: Wages                        REVIEW/ADD/CHANGE                    Escape: Main Menu
============A=========B====C====D====E====F======G======H===I===J=======K======
  1|
  2|
  3|                  | Monthly | Monthly |   Monthly   | Sales ||    Gross
  4|    Salesperson   |  Sales  | Salary  | Commissions | Bonus ||    Wages
  5|------------------|---------|---------|-------------|-------||-------------
  6|Kate              |  $7,482 |  $1,000 |     $935.25 |    $0 ||
  7|                  |         |         |             |       ||
  8|Bob               |  $5,572 |  $1,000 |     $696.50 |       ||
  9|                  |         |         |             |       ||
 10|John              | $11,003 |  $1,000 |   $1,650.45 |       ||
 11|                  |         |         |             |       ||
 12|Bruce             |  $3,780 |  $1,000 |     $378.00 |       ||
 13|                  |         |         |             |       ||
 14|                  |         |         |             |       ||
 15|                  |         |         |             |       ||
 16|                  |         |         |             |       ||
 17|                  |         |         |             |       ||
 18|                  |         |         |             |       ||
-------------------------------------------------------------------------------
I6: (Value) @IF(C6=@MAX(C6...C12),100,0)

Type entry or use @ commands                                        @-? for Help
```

Use the same formula for cells I8, I10, and I12, but change the cell coordinates on the *left* side of the "=" symbol to C8, C10, and C12, respectively (Figure 4-45). You should see a value of $100 in cell I10 and $0 in the other three cells.

Calculating Gross Wages

Finally, you can calculate the "Gross Wages" for each of your salespersons. In each case, "Gross Wages" are the sum of the values in columns E, G, and I. You can express this sum in one of two ways. "Gross Wages" for Kate can be computed as **+E6+G6+I6** or as **@SUM(E6...I6)**. After you have entered the four calculations in cells K6,

FIGURE 4—45

```
File: Wages                          REVIEW/ADD/CHANGE                    Escape: Main Menu
===========A=========B====C====D====E====F======G======H===I===J=======K======
  1|
  2|
  3|                  | Monthly | Monthly |   Monthly   | Sales ||    Gross
  4|    Salesperson   |  Sales  |  Salary | Commissions | Bonus ||    Wages
  5|------------------|---------|---------|-------------|-------||-------------
  6|Kate              |  $7,482 |  $1,000 |     $935.25 |    $0 ||
  7|                  |         |         |             |       ||
  8|Bob               |  $5,572 |  $1,000 |     $696.50 |    $0 ||
  9|                  |         |         |             |       ||
 10|John              | $11,003 |  $1,000 |   $1,650.45 |  $100 ||
 11|                  |         |         |             |       ||
 12|Bruce             |  $3,780 |  $1,000 |     $378.00 |    $0 ||
 13|                  |         |         |             |       ||
 14|                  |         |         |             |       ||
 15|                  |         |         |             |       ||
 16|                  |         |         |             |       ||
 17|                  |         |         |             |       ||
 18|                  |         |         |             |       ||
-------------------------------------------------------------------------------
I12: (Value) @IF(C12=@MAX(C6...C12),100,0)

Type entry or use @ commands                                        @-? for Help
```

FIGURE 4—46

```
File: Wages                          REVIEW/ADD/CHANGE                    Escape: Main Menu
===========A=========B====C====D====E====F======G======H===I===J=======K======
  1|
  2|
  3|                  | Monthly | Monthly |   Monthly   | Sales ||    Gross
  4|    Salesperson   |  Sales  |  Salary | Commissions | Bonus ||    Wages
  5|------------------|---------|---------|-------------|-------||-------------
  6|Kate              |  $7,482 |  $1,000 |     $935.25 |    $0 ||  $1,935.25
  7|                  |         |         |             |       ||
  8|Bob               |  $5,572 |  $1,000 |     $696.50 |    $0 ||  $1,696.50
  9|                  |         |         |             |       ||
 10|John              | $11,003 |  $1,000 |   $1,650.45 |  $100 ||  $2,750.45
 11|                  |         |         |             |       ||
 12|Bruce             |  $3,780 |  $1,000 |     $378.00 |    $0 ||  $1,378.00
 13|                  |         |         |             |       ||
 14|                  |         |         |             |       ||
 15|                  |         |         |             |       ||
 16|                  |         |         |             |       ||
 17|                  |         |         |             |       ||
 18|                  |         |         |             |       ||
-------------------------------------------------------------------------------
K12: (Value, Layout-D2) +E12+G12+I12

Type entry or use @ commands                                        @-? for Help
```

K8, K10, and K12, use the Layout command to change column K's Value format to Dollars with two decimal places—just as you did with column G (Figure 4-46).

Printing out Part of Your Spreadsheet

You would like to print out only columns A through K of your spreadsheet so that the Lookup table is not printed. Before you start to

print, go to Printer Options, /-O, and change the Report Header default from "Yes" to "No." ESC back to Review/Add/Change, place your cursor in column A and type /-P. Type **C** (for Columns) and move your cursor to the right so that columns A through K are highlighted. Then press RETURN. Select your printer and choose one copy (Figure 4-47).

Figure 4-48 is an expanded look at columns G, I, and K. The Zoom command was used to display all the formulas in these columns.

Don't forget to save this spreadsheet. You'll need it in the next chapter.

FIGURE 4—47

Salesperson	Monthly Sales	Monthly Salary	Monthly Commissions	Sales Bonus	Gross Wages
Kate	$7,482	$1,000	$935.25	$0	$1,935.25
Bob	$5,572	$1,000	$696.50	$0	$1,696.50
John	$11,003	$1,000	$1,650.45	$100	$2,750.45
Bruce	$3,780	$1,000	$378.00	$0	$1,378.00

FIGURE 4—48

```
File: Wages                        REVIEW/ADD/CHANGE                    Escape: Main Menu
    F           G           H             I             J       K
  1|
  2|
  3||       Monthly          |             Sales              ||    Gross
  4||     Commissions        |             Bonus              ||    Wages
  5||------------------------|--------------------------------||------------
  6||@LOOKUP(C6,M7...M9)*C6  |@IF(C6=@MAX(C6...C12),100,0)    ||+E6+G6+I6
  7||                        |                                ||
  8||@LOOKUP(C8,M7...M9)*C8  |@IF(C8=@MAX(C6...C12),100,0)    ||+E8+G8+I8
  9||                        |                                ||
 10||@LOOKUP(C10,M7...M9)*C10|@IF(C10=@MAX(C6...C12),100,0)   ||+E10+G10+I10
 11||                        |                                ||
 12||@LOOKUP(C12,M7...M9)*C12|@IF(C12=@MAX(C6...C12),100,0)  ||+E12+G12+I12
 13||                        |                                ||
 14||                        |                                ||
 15||                        |                                ||
 16||                        |                                ||
 17||                        |                                ||
 18||                        |                                ||
-------------------------------------------------------------------------------
F6: (Label) |

Type entry or use @ commands                                        @-? for Help
```

Special Examples for Special Functions

If you've been keeping track of the functions demonstrated in the last three examples, you probably noticed that not all of them have been covered. I felt that using functions such as @SQRT and @COUNT was so straightforward that you didn't have to see specific examples of their use.

Two of the functions, @INT and @CHOOSE, do require a little more explanation.

THE @INT FUNCTION

The @INT function takes the value of its argument and throws away everything to the right of the decimal. Note that @INT doesn't round to the nearest integer; it truncates down to the next integer. In other words, @INT(3.75) evaluates to 3.

There is a way to make @INT round to the nearest integer, however. All you have to do is add .5 to the value in the argument. Suppose you wanted to round the value in cell C6 to the nearest whole number. The expression **@INT(C6 + .5)** does just what you want it to. You can even use @INT to round a value to the nearest hundredth. **@INT(100*C6 + .5)/100** will round C6 to 2 decimal places.

Now consider the following expression:

@INT(C6/5000) + 1

If C6 is less than 5000, **@INT(C6/5000)** equals 0, and, therefore, **@INT(C6/5000) + 1** equals 1. Similarly, if C2's value lies between 5000 and 9999, **@INT(C6/5000) + 1** equals 2, and so on. The purpose of this application of the @INT function is to reduce values in column C of your spreadsheet, the "Monthly Sales" column, to values of 1, 2, or 3. (*Note:* For the purpose of this example, we'll assume that no salesperson sells more than $14,999 in one month.)

THE @CHOOSE FUNCTION

Now let's look at @CHOOSE. This function uses an index value to select a choice of values. A typical expression might be:

@CHOOSE(Z7,10,15,75)

The way this function works is that it begins by evaluating the first term (Z7 in the example). If Z7's value is 1, the function evaluates as 10; if Z7 is 2, the function returns 15 for its value; if Z7 equals 3, the function equals 75. In other words, the value of the index term determines which of the following terms is used. (*Note:* If the index

value is zero, or greater than the number of terms following the index, the expression evaluates as an ERROR.)

You can use the two functions, @INT and @CHOOSE, in place of @LOOKUP in column G. You'll use **@INT(C6/5000) + 1** as the index term, and .10, .125, and .15 and the three terms following the index. The entire expression,

@CHOOSE(@INT(C6/5000) + 1,.10,.125,.15)

will yield the proper percent and would then be multiplied by the sales value in column C (C6 for Kate's commission).

Let's try it. Move your cursor to cell K6 and type

@CHOOSE(@INT(C6/5000) + 1,.10,.125,.15)*C6

and see that the result, $935.25, remains the same (Figure 4-49). This is just a different way to calculate sales commissions in your spreadsheet. Its advantage is that it doesn't require a separate Lookup table.

FIGURE 4—49

```
File: Wages                        REVIEW/ADD/CHANGE                    Escape: Main Menu
============A=========B====C====D====E====F======G======H===I===J=======K======
  1|
  2|
  3|                  | Monthly | Monthly |    Monthly    | Sales ||     Gross
  4|    Salesperson   |  Sales  |  Salary | Commissions   | Bonus ||     Wages
  5|------------------|---------|---------|---------------|-------||-------------
  6|Kate              |  $7,482 |  $1,000 |       $935.25 |    $0 ||   $1,935.25
  7|                  |         |         |               |       ||
  8|Bob               |  $5,572 |  $1,000 |       $696.50 |    $0 ||   $1,696.50
  9|                  |         |         |               |       ||
 10|John              | $11,003 |  $1,000 |    $1,650.45 |  $100 ||   $2,750.45
 11|                  |         |         |               |       ||
 12|Bruce             |  $3,780 |  $1,000 |       $378.00 |    $0 ||   $1,378.00
 13|                  |         |         |               |       ||
 14|                  |         |         |               |       ||
 15|                  |         |         |               |       ||
 16|                  |         |         |               |       ||
 17|                  |         |         |               |       ||
 18|                  |         |         |               |       ||
-------------------------------------------------------------------------------
G6: (Value, Layout-D2) @CHOOSE(@INT(C6/5000)+1,.1,.125,.15)*C6

Type entry or use @ commands                                        @-? for Help
```

Final Comments

The spreadsheet is by far the most complex of the three AppleWorks applications. But, as with the other two, the more you use it, the easier it is to use. Think up your own spreadsheet applications and use the three-step process outlined above. Being able to use a spreadsheet to answer "what if?" type questions places an incredibly powerful analytical tool at your fingertips.

CHAPTER

5

CUTTING AND PASTING

Up to this point, you have been using the Copy and Move commands to shift data around within the file you were currently working with. The real power of an integrated set of applications such as AppleWorks is that you can move sections (or even all) of one file into another file. Not only can you take part of one spreadsheet and put it into another spreadsheet, but you can also move your spreadsheet into a word processing document, or your data base into your spreadsheet.

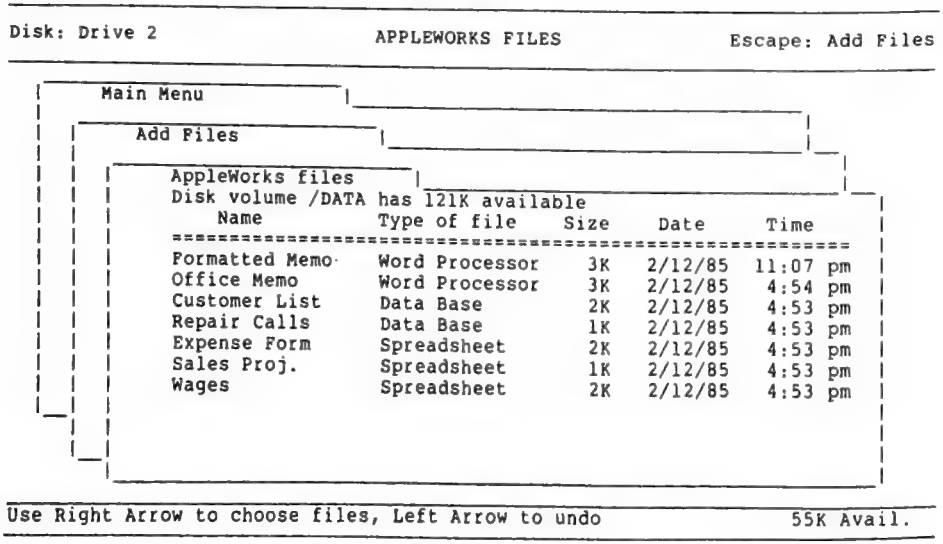
In this chapter, you'll see how to do both types of cutting and pasting—between files of the same application, and between files of different applications. You can even read non-AppleWorks files into the AppleWorks word processor, data base, and spreadsheet, but you'll learn how to do this in Chapter 6.

You'll need your data disk, which should have the seven files you created in Chapters 2, 3, and 4. If you have been creating and saving the files relating to examples in these chapters, your AppleWorks Files folder will look like Figure 5-1.

I. CUTTING AND PASTING IN THE SAME APPLICATION

In this section you'll see how to copy or move sections of one AppleWorks file into another file of the same type. Let's start with the word processing application.

FIGURE 5—1



Using the Clipboard with Word Processing Files

Load the document, "Formatted Memo," onto your Desktop. (*Note:* If you don't have the document, "Formatted Memo," which was created in Chapter 2, you can use any word processing document for this exercise.)

Now, suppose you wanted to create another memo that contained only the eight items from your "Formatted Memo" and a title line: "Hot & Cold's Pricing Policy." First, you would create a *new* word processing document. So, ESC to the Main Menu, choose option 1 (**Add files to the Desktop**), select option 3 (**Make a new file for the Word Processor**), and create it from scratch. Name this new document "Pricing Policy." You now have two word processing documents on your Desktop, "Formatted Memo" and the newly created "Pricing Policy."

Before you type in the title line on "Pricing Policy," go to the Printer Options page, ⌘ -O, type **CN** and press RETURN. (*Note:* You do this so your title will be centered when you type it.) ESC out of Printer Options and type **Hot & Cold's Pricing Policy**. Press RETURN. Go back to Printer Options and reset the justification to Unjustified by typing **UJ** and pressing RETURN. ESC out of Printer Options.

SELECTING A DOCUMENT FROM THE DESKTOP

You want to go back to your "Formatted Memo" so that you can copy the eight numbered items from that memo into the "Pricing Policy" document. Type ⌘ **-Q**, and AppleWorks will display the Desktop Index—a list of all the files currently on the Desktop (Figure 5-2). You can have a

FIGURE 5—2

```
File: Pricing Policy          REVIEW/ADD/CHANGE          Escape: Main Menu
=====|====|====|====|====|====|====|====|====|====|====|====|====|====|===
--------Centered
                  HOT & COLD'S PRICING POLICY
--------Unjustified


                    ┌──────────────────────┐
                    │    Desktop Index     │
                    │----------------------│
                    │ 1. Formatted Memo  WP│
                    │ 2. Pricing Policy  WP│
                    └──────────────────────┘


Type number, or use arrows, then press Return                  52K Avail.
```

maximum of eight files on your Desktop at the same time. You can select any one of them by using the up- or down-arrow key to highlight the file you want to see, or by pressing the number (1 through 8) of the document. Pressing the RETURN key completes the selection. (*Note:* Figure 5-2 is shown "Zoomed in" so that the two Printer Options are displayed.)

COPYING TEXT TO THE CLIPBOARD

Select "Formatted Memo" from the Desktop Index and type ⌘ **-Z** so that you can see the Printer Options imbedded in the text. You would like to copy not only the eight items from the memo, but the **Indent: 5 chars** Printer Option as well. Move your cursor to the "Indent: 5 chars" line and type ⌘ **-C**, the Copy command (Figure 5-3). Type **T** to select To Clipboard (cut). You're going to copy a portion of your memo into AppleWorks' clipboard.

FIGURE 5—3

```
File: Formatted Memo                COPY TEXT          Escape: Review/Add/Change
=====|====|====|====|====|====|====|====|====|====|====|====|====|====|====|===
by all H & C employees so we can avoid customer
misunderstandings. Here are some guidelines which should
help you answer any service charge questions your on site
customer might have.

--------Left Margin:  1.5 inches
--------Right Margin:  1.5 inches
--------Indent: 5 chars
     1.   Labor is billed at $45.00 per hour. Time
          starts when the service technician arrives at
          the customer's location.

     2.   There is a minimum one hour labor charge. If
          the job takes more than one hour, then time
          is billed by the quarter hour, rounded up to
          the nearest quarter hour. In other words, if
          the job takes one hour and twenty minutes,
          the customer is charged for an hour and a
          half.

--------------------------------------------------------------------------------
Copy Text?  Within document  To clipboard (cut)  From clipboard (paste)
```

Use the down-arrow key to highlight all the text up to end of the eighth item. Then press the RETURN key. Those eight items, including the **Indent: 5 chars** option, are now in the Clipboard.

COPYING TEXT FROM THE CLIPBOARD

Type ⌘ **-Q** and select "Pricing Policy" from the Desktop Index. Move your cursor so that it is a couple of lines below the title and type ⌘ **-C**. This time, type **F** to select From Clipboard (paste), and the contents of the Clipboard will be copied into your document (Figure 5-4).

FIGURE 5—4

```
File: Pricing Policy          REVIEW/ADD/CHANGE          Escape: Main Menu
=====|====|====|====|====|====|====|====|====|====|====|====|====|====|===
--------Centered
                HOT & COLD'S PRICING POLICY
--------Unjustified

--------Indent: 5 chars
1.   Labor is billed at $45.00 per hour. Time starts when
     the service technician arrives at the customer's
     location.

2.   There is a minimum one hour labor charge. If the job
     takes more than one hour, then time is billed by the
     quarter hour, rounded up to the nearest quarter hour.
     In other words, if the job takes one hour and twenty
     minutes, the customer is charged for an hour and a
     half.

3.   If the job requires two men, the labor charge per hour
     will double.

4.   We will not use customer purchased parts in our repairs
-------------------------------------------------------------------------
Type entry or use @ commands          Line 5  Column  1        @-? for Help
```

The Clipboard still has the text from "Formatted Memo" in it. If you wanted to, you could copy the same text into several documents. The text will stay in the Clipboard until you either exit AppleWorks or put something else in the Clipboard.

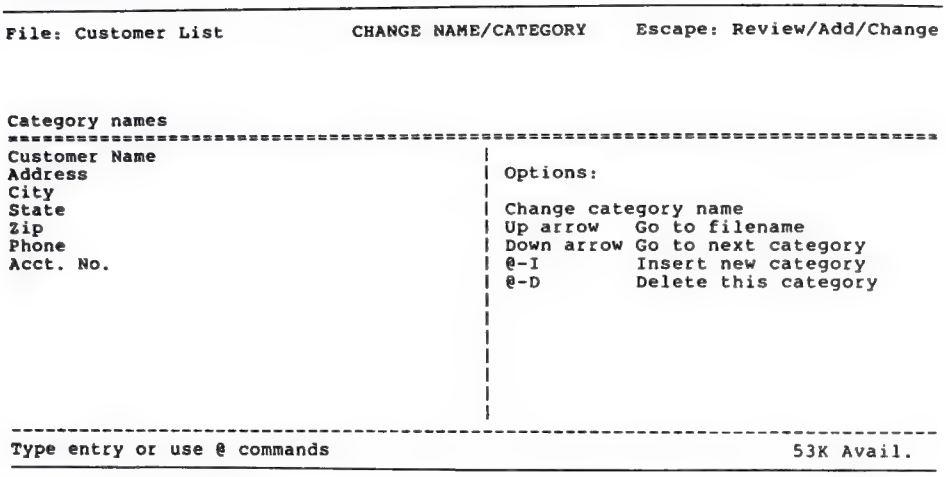
Save the "Pricing Policy" document, ⌘-S, and then ESC to the Main Menu. Use option 4, **Remove files from the Desktop**, to remove the two word processor files from your Desktop.

Using the Clipboard with Data Base Files

Suppose you wanted to divide the customers you have in the "Customer List Data Base" file into several groups, so that each group would have its own file. You might want to do this if your customer file got so large that AppleWorks wouldn't let you add any more records to the file. You would have to decide how you wanted to divide your customers—perhaps alphabetically, perhaps by zip code, or maybe by the year in which each became a customer of Hot & Cold Inc. You'll remember (from Chapter 3) that the first two digits of the Account Number represented the year the customer first opened an account with your company. So, let's use that factor to divide the original "Customer List" file into three separate files: one for '83 customers, one for '84 customers, and one for '85 customers.

First, you'll have to create three new data base files. The categories for these files will be exactly the same as those for your original "Customer List" file. Figure 5-5 shows the list of category names from

FIGURE 5—5



"Customer List." From the Main Menu, add a new data base file to your Desktop. Call it "Customers.83," and enter the seven category names from Figure 5-5.

After you finish typing the last category name and have pressed the RETURN key, press ESC three times to go back to the Main Menu. Add a second new data base file to your Desktop. Call this one "Customers.84," and enter the same seven category names. Repeat the process one more time, creating a data base file called "Customers.85."

You should now have three data base files on your Desktop, each with the same seven category names. Again ESC to the Main Menu. This time you want to add a data base file from your data disk. Load the file called "Customer List." (*Note:* If you don't have this file, and you want to continue with this exercise, refer back to Chapter 3 and create the "Customer List" file.)

When the "Customer List" file is loaded, you should be looking at the multiple record format screen of Review/Add/Change (Figure 5-6). (If you're looking at the single record format screen, type ⌘ **-Z**.)

Use the Record Selection command, ⌘ -R, to display only those records whose Account Numbers begin with 83. Type ⌘ **-R**, choose the seventh category ("Acct. No."), then choose option 8, **begins with**. Type **83** for the comparison information, press RETURN, and then ESC back to Review/Add/Change. This selects only those records with Account Numbers beginning with 83, and if you have entered only the five records listed in Chapter 3, only one record will be selected (Figure 5-7).

FIGURE 5—6

```
File: Customer List              REVIEW/ADD/CHANGE              Escape: Main Menu

Selection: All records

Acct.  Customer Name               Address                 City          Phone
=============================================================================
84-220 Ms. D. McMullen             1615 Ninth Ave.         Bayshore      555-0593
85-103 Ms. Gail Dooley             512 E. Main St.         East Meadow   555-8211
84-109 Mr. & Mrs. Terry Dethloff   R.R. 1                  Farmtown      555-3961
84-104 Mr. & Mrs. Rob Smith        1423 First Ave.         Meadowbrook   555-3562
83-282 Mr. Steve Miller            573 W. Elm St.          Meadowbrook   555-6342

-----------------------------------------------------------------------------
Type entry or use @ commands                                    @-? for Help
```

FIGURE 5—7

```
File: Customer List              REVIEW/ADD/CHANGE              Escape: Main Menu

Selection: Acct. No. begins with 83

Acct.  Customer Name               Address                 City          Phone
=============================================================================
83-282 Mr. Steve Miller            573 W. Elm St.          Meadowbrook   555-6342

-----------------------------------------------------------------------------
Type entry or use @ commands                                    @-? for Help
```

Now use the Copy command, ⌘-C, to copy the record out of the "Customer List" file and paste it into the "Customer.83" file. Type ⌘-C and press the "T" key to select To Clipboard (cut). Your one record is highlighted. If there had been several records listed, you would have used the down-arrow key to highlight them all. Press the RETURN key and the highlighted record is copied to the Clipboard.

Type ⌘-Q to see the Desktop Index. Select "Customers.83" and press RETURN. Because this file hasn't any records in it, you'll see a

screen advising you that the file is empty. Press the space bar, and you'll see the standard Insert New Records screen. Instead of typing in records, you're going to paste them in from the Clipboard. So press the ESC key to get to the Review/Add/Change screen, and then type ⌘ **-Z** to Zoom out to the multiple record format screen. You can only paste into the multiple record format Review/Add Change screen. Type ⌘ **-C** and **F** (Figure 5-8). You'll notice that you have an empty record, indicated by dashes in each category. You can use the Delete command, ⌘ -D, to remove this record.

Go back to the "Customer List" file (with the ⌘ -Q command) and use Record Selection to select those records with Account Numbers beginning with 84 (Figure 5-9). Again use ⌘ **-C** to copy all three of these records to the Clipboard. Then use ⌘ **-Q** to select the "Customers.84" file. Again press the space bar, ESC, and ⌘ **-Z** to get to the multiple record format Review/Add/Change screen. Type ⌘ **-C**, **F**, and the three records you copied from the "Customer List" file will be pasted into the "Customers.84" file (Figure 5-10).

For practice, repeat the process one more time, selecting the record from the "Customer List" file whose Account Number begins with 85, copying it to the Clipboard, and pasting it into the "Customers.85" file.

Save the three new files onto your data disk. ESC to the Main Menu and select option 3, **Save Desktop files to disk**. Use the right- and down-arrow keys to indicate that you want to save the first three files (Figure 5-11). Then press RETURN. For each of the three files, you will be asked whether you want to save this file to the current data disk or change to a different data disk. Press the RETURN key to indicate you want to use the same data disk.

FIGURE 5—8

```
File: Customers.83              REVIEW/ADD/CHANGE              Escape: Main Menu

Selection: All records

Customer Name   Address          City             State          Zip
================================================================================
Mr. Steve Mille 573 W. Elm St.   Meadowbrook      IL             60099
-               -                -                -              -




--------------------------------------------------------------------------------
Type entry or use @ commands                                        @-? for Help
```

FIGURE 5—9

```
File: Customer List              REVIEW/ADD/CHANGE              Escape: Main Menu

Selection: Acct. No. begins with 84

Acct.  Customer Name              Address                 City          Phone
=============================================================================
84-220 Ms. D. McMullen            1615 Ninth Ave.         Bayshore      555-0593
84-109 Mr. & Mrs. Terry Dethloff  R.R. 1                  Farmtown      555-3961
84-104 Mr. & Mrs. Rob Smith       1423 First Ave.         Meadowbrook   555-3562

-----------------------------------------------------------------------------
Type entry or use @ commands                                      @-? for Help
```

FIGURE 5—10

```
File: Customers.84               REVIEW/ADD/CHANGE              Escape: Main Menu

Selection: All records

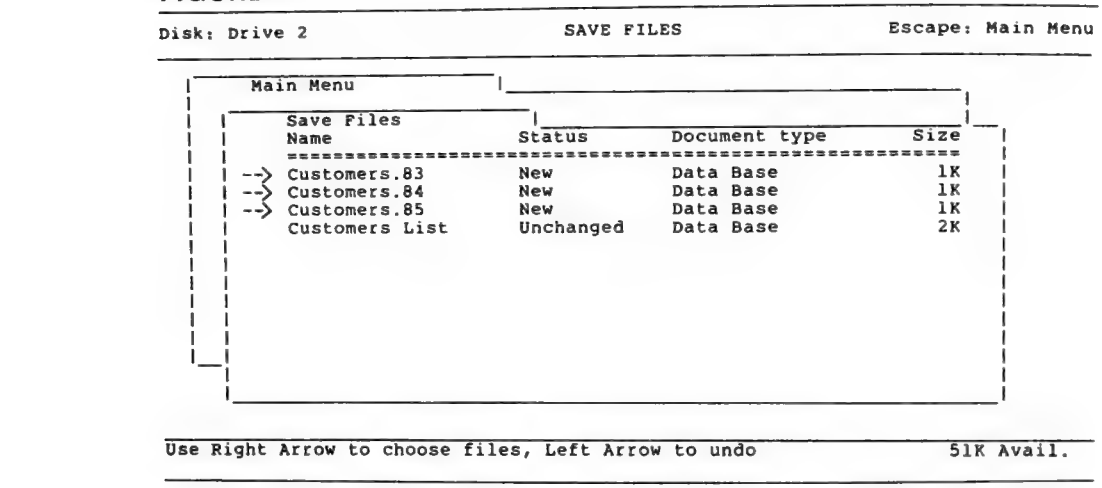
Customer Name   Address          City            State          Zip
=============================================================================
Ms. D. McMullen 1615 Ninth Ave.  Bayshore        IL             60990
Mr. & Mrs. Terr R.R. 1           Farmtown        IL             60095
Mr. & Mrs. Rob  1423 First Ave.  Meadowbrook     IL             60099
-               -                -               -              -

-----------------------------------------------------------------------------
Type entry or use @ commands                                      @-? for Help
```

Using the Clipboard with Spreadsheet Files

Now that you've saved the three new data base files, remove all four files from your Desktop and load in the "Expense Form Spreadsheet." Suppose you wanted to create a weekly summary report of the expenses from all your employees' expense forms. If you could move the bottom line, the "Daily Total" line, from each individual expense form to a

FIGURE 5—11



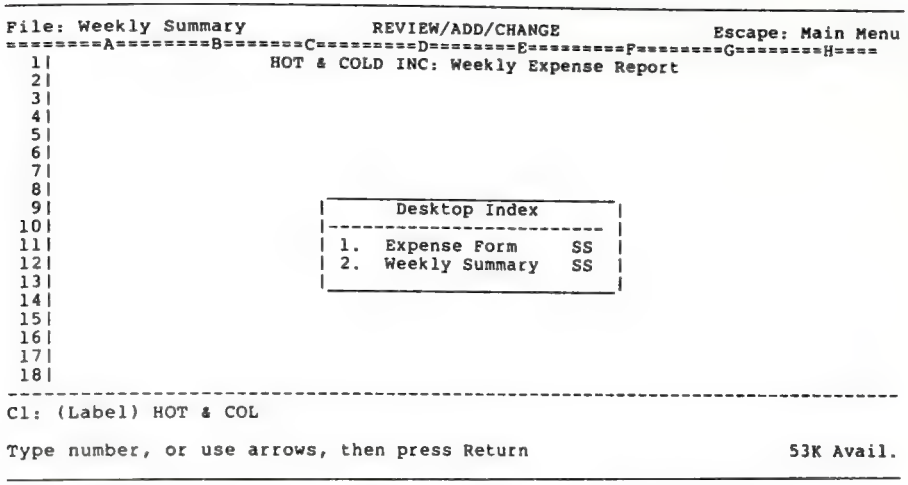
summary spreadsheet, you could then easily add up the values in the "Total" column to get the total expenses for the week.

Before you can move anything from your "Expense Form Spreadsheet" into the "Weekly Summary Spreadsheet," you have to create the "Weekly Summary Spreadsheet." After you add this new spreadsheet to your desktop, type **HOT & COLD INC: Weekly Expense Report** in cells C1 through G1 (don't forget to press the RETURN key when you're through typing the label). Now go back to your "Expense Form Spreadsheet" by using the ⌘ **-Q** command (Figure 5-12).

Because you'll be moving sections of your "Expense Form Spreadsheet" to the "Weekly Summary Spreadsheet," you should disable the protection feature from "Expense Form Spreadsheet." This will prevent your seeing warning messages every time you Move or Copy a portion of the spreadsheet. Type ⌘ **-V** (the Standard Values command), **P** (for Protection), and **N** (for No).

To make it easier to identify which column contains the total expenses, let's move the row with the column headings and the row below it (rows 6 and 7) to the "Weekly Summary Spreadsheet." Place your cursor in cell A6 and type ⌘ **-M**, the Move command. Type **T** to select To Clipboard (cut), and row 6 is highlighted. Notice that you can only cut and paste whole rows from one spreadsheet to another. You cannot cut columns, a single cell, or a group of cells. Press the down-arrow key once, so that rows 6 and 7 are both highlighted. Then press RETURN to move these rows to the Clipboard.

FIGURE 5—12


File: Weekly Summary
REVIEW/ADD/CHANGE
Escape: Main Menu
A B C D E F G H
HOT & COLD INC: Weekly Expense Report
Desktop Index
1. Expense Form SS
2. Weekly Summary SS
C1: (Label) HOT & COL
Type number, or use arrows, then press Return
53K Avail.

Now you see the difference between using Copy and using Move to place a section of your document in the Clipboard (Figure 5-13). The Move command deletes the section from your document; the Copy command leaves the document unaltered.

Don't worry about messing up the "Expense Form Spreadsheet." The original, untouched version is still on your data disk. As long as you *don't* save the current version of this spreadsheet, the disk copy will remain the same.

Use the ⌘ -Q command to go to the "Weekly Summary Spreadsheet." Move your cursor to cell A4 (you want the column headings to be pasted into row 4). Type ⌘ **-M** and **F**. The two rows from your "Expense Form Spreadsheet" have been pasted into your "Weekly Summary Spreadsheet" (Figure 5-14).

Go back to "Expense Form Spreadsheet" (⌘ -Q). You want to cut the "Daily Total" row from "Expense Form Spreadsheet" and paste it into the "Weekly Summary Spreadsheet." (You would do this for all of your expense forms for the week so that you could add them together. That's the whole point of this exercise.) The problem is that you *can't* just cut and paste cells with formulas in them. Let's try it and you'll see what I mean.

Move your cursor to A15 and type ⌘ **-C**, **T**, and RETURN. (Press the "Y" key if you see a caution message.) This places row 15 in the Clipboard. Now go to the "Weekly Summary Spreadsheet." Place your cursor in A6 and type ⌘ **-C** and **F** (Figure 5-15). What happened? Those

FIGURE 5—13

```
File: Expense Form              REVIEW/ADD/CHANGE              Escape: Main Menu
========A========B========C========D========E========F========G========H====
  1|                          HOT & COLD INC: Expense Report
  2|
  3|Name:                                                          Week Endi
  4|
  5|
  6|Airfare              275.00                                   275.00
  7|Taxi or Limo          20.00                                    20.00
  8|Car Rental                                                    135.83
  9|Lodging               85.30     85.30     85.30     85.30
 10|Breakfast                       3.50      3.80      3.35      4.20
 11|Lunch                 5.25     10.50      8.25      7.40      8.50
 12|Dinner               21.50     19.35     12.90     35.85
 13|Phone                 6.32     15.72     14.95     11.53      9.20
 14|=============================================================================
 15|Daily Total          413.37    134.37    125.20    143.43    452.73      0.00
 16|
 17|
 18|
-------------------------------------------------------------------------------
A6: (Label, Protect-N) Airfare

Type entry or use @ commands                                      @-? for Help
```

FIGURE 5—14

```
File: Weekly Summary            REVIEW/ADD/CHANGE              Escape: Main Menu
========A========B========C========D========E========F========G========H=====
  1|                  HOT & COLD INC: Weekly Expense Report
  2|
  3|
  4|                       Mon       Tue       Wed       Thu       Fri       Sat
  5|-------------------------------------------------------------------------
  6|
  7|
  8|
  9|
 10|
 11|
 12|
 13|
 14|
 15|
 16|
 17|
 18|
-------------------------------------------------------------------------------
A4

Type entry or use @ commands                                      @-? for Help
```

ERROR markers tell you that AppleWorks couldn't figure out what you wanted it to do. Move your cursor to the first ERROR marker in cell C6, and you'll see what went wrong. AppleWorks tried to cut cells containing *formulas* (for example, **@SUM(C6...C13)**) from one spreadsheet to another. When the formula arrived at the second spreadsheet, your "Weekly Summary Spreadsheet," the cells referred to in the formula weren't there.

FIGURE 5—15

```
File: Weekly Summary          REVIEW/ADD/CHANGE          Escape: Main Menu
========A========B=========C========D=======E=======F=========G========H=====
  1|                  HOT & COLD INC: Weekly Expense Report
  2|
  3|
  4|                      Mon       Tue       Wed       Thu       Fri       Sat
  5|-------------------------------------------------------------------------
  6|Daily Total          ERROR     ERROR     ERROR     ERROR     ERROR     ERROR
  7|
  8|
  9|
 10|
 11|
 12|
 13|
 14|
 15|
 16|
 17|
 18|
--------------------------------------------------------------------------------
A6: (Label, Protect-N) Daily Tot

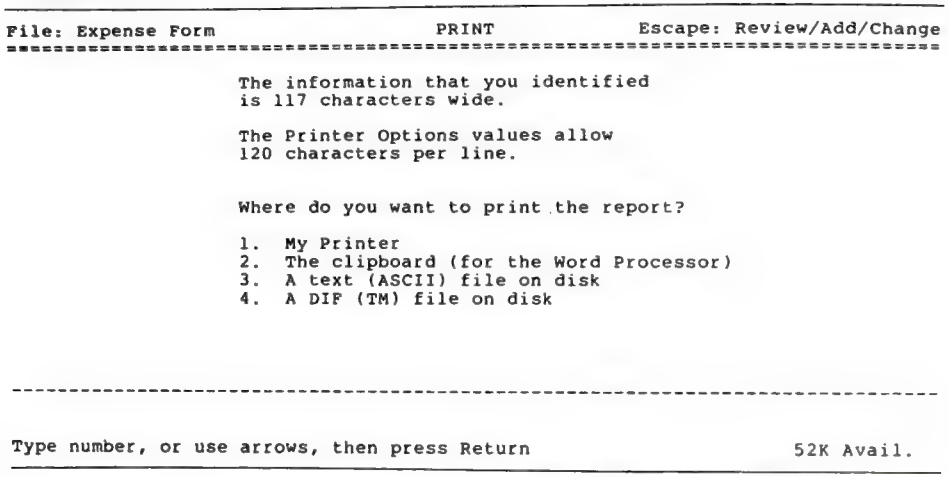
Type entry or use @ commands                                    @-? for Help
```

Somehow you need to transfer only the values from row 15 in your "Expense Form Spreadsheet"—*not* the formulas. There is a way to do this, but it's a bit more complex than just cutting and pasting. What you'll do is create a special file on your data disk containing only row 15 (the "Daily Total" row) from your "Expense Form Spreadsheet." This row of data will be recorded in what is called *DIF* (Data Interchange format). The DIF file will be read back in as a new spreadsheet file and can then be cut and pasted into your "Weekly Summary Spreadsheet." I know this sounds complicated, but follow along step-by-step, and you'll see it's not as difficult as it looks.

First, delete row 6 from your "Weekly Summary Spreadsheet." (Type ⌘ **-D** and press the RETURN key twice.) Now return to the "Expense Form Spreadsheet" and move your cursor to a cell in row 15. You're going to print that row to your data disk in DIF. Type ⌘ **-P** and press the "R" key to indicate that you want to print selected rows. Row 15 is highlighted, and since this is the only row you want to print, press RETURN. You should see at least four choices for where you want to print (Figure 5-16). One of them, probably number 4, will be **A DIF (TM) file on disk**. Select this option. At the bottom of your screen, you will be asked for "DIF order." Type **C** for Columns.

You will be asked to type a *Pathname* for the file. A Pathname consists of the disk's *Volume* name and the file's *file* name. Assuming you named your data disk "DATA" when you formatted it, type **/DATA/DIF** for the Pathname. (*Note:* If your computer system has two disk drives, the

FIGURE 5—16


File: Expense Form
PRINT
Escape: Review/Add/Change
The information that you identified
is 117 characters wide.
The Printer Options values allow
120 characters per line.
Where do you want to print the report?
1. My Printer
2. The clipboard (for the Word Processor)
3. A text (ASCII) file on disk
4. A DIF (TM) file on disk
Type number, or use arrows, then press Return
52K Avail.

data disk named "DATA" should be in drive 2. If you have a single-drive system, you will be prompted to replace your AppleWorks program disk with your data disk.)

ESC to the Main Menu and choose **Add files to the Desktop**. From the Add Files Menu, select option 5, **Make a new file for the Spreadsheet**.

At this point, you usually choose option 1, **From scratch**. This time, choose option 2, **From a DIF (TM) file**. In response to the Pathname prompt, type the same pathname you used when you created the DIF file, **/DATA/DIF**. And when you're asked to type a name for this spreadsheet, type **DIF** (Figure 5-17).

This is the row of data that you can cut and paste into your "Weekly Summary Spreadsheet." With your cursor on a cell in row 1, type **-M** and **T**, and press RETURN. Use -Q to go to the "Weekly Summary Spreadsheet." Now, with your cursor on a cell in row 6, type **-M** and **F**. Success, at last! (*Note:* Of course, you would have to repeat the process for each of the expense forms for the week, and then total up column J to get the weekly total.)

Summarizing

Cutting and Pasting between two word processing files, two data base files, or two spreadsheet files can really save you time and effort when you are producing reports. The above three examples were chosen simply to illustrate the method of Cutting and Pasting, using the files

FIGURE 5—17

```
File: DIF                          REVIEW/ADD/CHANGE                  Escape: Main Menu
=======A=========B========C========D========E=========F========G========H=====
  1|Daily Total          413.37    134.37     125.2     143.43    452.73          0
  2|
  3|
  4|
  5|
  6|
  7|
  8|
  9|
 10|
 11|
 12|
 13|
 14|
 15|
 16|
 17|
 18|
--------------------------------------------------------------------------------
C1: (Value) 413.37

Type entry or use @ commands                                        @-? for Help
```

you had already created in earlier chapters. Here is a typical situation where Cutting and Pasting between documents of the same type would be very useful.

Suppose you regularly sent out form letters to clients. A typical form letter might contain four or five paragraphs selected from 20 or so standard paragraphs—the choice of paragraphs depending on the client. You could keep the 20 standard paragraphs in one document on your Desktop, create a new word processing document for the form letter to a particular client, and Cut and Paste appropriate paragraphs to create a "personalized" form letter.

II. CUTTING AND PASTING IN DIFFERENT APPLICATIONS

Many AppleWorks users (and I am one of them) feel that the real power of AppleWorks lies in its ability to move documents easily from the data base or the spreadsheet to the word processor. Not only can you incorporate the data base report or spreadsheet into your word processing file, but you can add "special effects" to your reports, such as underlining and boldface printing, which are available only in the word processor.

From the Data Base to the Word Processor

Load the file "Repair Calls" from your data disk into the AppleWorks Desktop. (*Note:* If you don't have the "Repair Calls" data base file, you can either go back to Chapter 3 and create it or use one of your own data base files.) Figure 5-18 is the report you created for this file. (It's actually a copy of Figure 3-47.)

One of the limitations of the standard "tables" report format is that you can either choose to have the entire four-line report heading printed, or you can set the Print Heading (PH) Printer Option to "No" and have no headings printed at all. But suppose you wanted your report to have column headings ("Date," "Technician," etc.) but not the top two lines that contain the name of the file, the name of the report, page number, etc. With the data base report generator you can't choose to print just some of the heading. You either get all of the heading or none of it.

What you *can* do is to print the entire data base report to the Clipboard, and then paste it into a word processing document. Then you can use all of the text editing features of the word processor to customize your report before you print it.

FIGURE 5—18

File: Repair Calls
Report: Weekly Report

Date	Technician	Acct. No.	Hours Billed	Labor Cost	Parts Cost	Total Cost
Jun 24	Bill	83-115	2.00	90.00	55.20	145.20
Jun 25	Bill	84-200	1.00	45.00	.85	45.85
Jun 25	Bill	84-138	1.50	67.50	67.35	134.85
			4.50		123.40	325.90
Jun 24	Chuck	83-211	1.50	67.50	120.75	188.25
Jun 24	Chuck	85-114	1.00	45.00		45.00
Jun 25	Chuck	83-121	2.50	112.50	248.75	361.25
Jun 25	Chuck	85-147	1.25	56.25	45.30	101.55
			6.25		414.80	696.05
Jun 24	Penney	85-109	1.00	45.00		45.00
Jun 24	Penney	84-142	1.75	78.75	79.40	158.15
Jun 25	Penney	83-101	1.50	67.50	110.95	178.45
			4.25		190.35	381.60
			15.00*		728.55*	1403.55*

PRINTING TO THE CLIPBOARD

The first step is to print the report to the Clipboard. You have already loaded in the "Repair Calls" file and should be looking at the Review/Add/Change screen (Figure 5-19). Type ⌘ **-P** to get to the Report Menu (Figure 5-20). Select option 1, **Get a report format**, and press RETURN to accept the Weekly Report format. (*Note:* If your data base file doesn't have a Report format already created, you'll have to create one first,

FIGURE 5—19

```
File: Repair Calls              REVIEW/ADD/CHANGE              Escape: Main Menu

Selection: All records

Technician      Acct. No.       Date            Hours Billed    Parts Cost
==========================================================================
Bill            83-115          Jun 24          2               55.20
Bill            84-200          Jun 25          1               .85
Bill            84-138          Jun 25          1.5             67.35
Chuck           83-211          Jun 24          1.5             120.75
Chuck           85-114          Jun 24          1               0
Chuck           83-121          Jun 25          2.5             248.75
Chuck           85-147          Jun 25          1.25            45.30
Penney          85-109          Jun 24          1               0
Penney          84-142          Jun 24          1.75            79.40
Penney          83-101          Jun 25          1.5             110.95

--------------------------------------------------------------------------
Type entry or use @ commands                                    @-? for Help
```

FIGURE 5—20

```
File: Repair Calls                  REPORT MENU          Escape: Review/Add/Change
Report: None

==========================================================================

                1.  Get a report format
                2.  Create a new "tables" format
                3.  Create a new "labels" format
                4.  Duplicate an existing format
                5.  Erase a format

--------------------------------------------------------------------------
Type number, or use arrows, then press Return                       54K Avail.
```

before you can continue with this exercise. Refer to Chapter 3 if you need help creating a report format.)

From the Report format (Figure 5-21), type ⌘ **-P** to print your report (Figure 5-22). But instead of selecting your printer as the destination for the report, choose option 3, **The Clipboard (for the Word Processor)**. You'll be asked to type a report date for your report; just press RETURN. You will see a message telling you that your report is now on the Clipboard and can be moved or copied into word processor documents.

FIGURE 5—21

```
File: Repair Calls                REPORT FORMAT              Escape: Report Menu
Report: Weekly Report
Selection: All records

Group Totals on: Technician
================================================================================
--> or <--  Move cursor                          @-J  Right justify this category
 >  @   <   Switch category positions            @-K  Define a calculated category
--> @  <--  Change column width                  @-N  Change report name and/or title
@-A  Arrange (sort) on this category            @-O  Printer options
@-D  Delete this category                       @-P  Print the report
@-G  Add/remove group totals                    @-R  Change record selection rules
@-I  Insert a prev. deleted category            @-T Add/remove category totals
--------------------------------------------------------------------------------

Date    Technician  Acct. No.  Hours Billed  Labor Cost  Parts Cost  Total Cost
-A----- -B--------- -C-------- -D---------- -E-------- -F--------- -G---------
Jun 24  Bill        83-115     999999999.99  9999999.99  9999999.99   99999999.
Jun 25  Bill        84-200     999999999.99  9999999.99  9999999.99   99999999.
Jun 25  Bill        84-138     999999999.99  9999999.99  9999999.99   99999999.
                               ============              ==========  ==========
--------------------------------------------------------------------------------
Use options shown above to change report format                  54K Avail.
```

FIGURE 5—22

```
File: Repair Calls                PRINT THE REPORT           Escape: Erase entry
Report: Weekly Report
Selection: All records

Group totals on: Technician
================================================================================
                    Where do you want to print the report?

                    1.  My Printer

                    2.  The screen

                    3.  The clipboard (for the Word Processor)

                    4.  A text (ASCII) file on disk

                    5.  A DIF (TM) file on disk


--------------------------------------------------------------------------------
Type number, or use arrows, then press Return  3                 54K Avail.
```

Press the space bar to return to the Report format screen, and then press the ESC key three times to go to AppleWorks' Main Menu.

PASTING THE REPORT INTO THE WORD PROCESSOR

Choose **Add files to the Desktop** and make a new file for the word processor, from scratch, called "WP Report." Before you paste the report into this document, you'll want to change some of the Printer Options. So, type ⌘ **-O**. Change the left and right margins to zero inches, and set characters per inch to 12 (Figure 5-23). (*Note:* If your printer doesn't support 12 characters per inch, try 17.) The reason you want to increase the number of characters per inch is that your original data base report was wider than 80 characters per line. Choosing zero left and right margins and 12 characters per inch will give you 96 characters per line when you print your report from the word processor. ESC back to Review/Add/Change.

FIGURE 5—23

```
File: WP Report                    PRINTER OPTIONS        Escape: Review/Add/Change
=====|====|====|====|====|====|====|====|====|====|====|====|====|====|====|===
--------Left Margin:  0.0 inches
--------Right Margin:  0.0 inches
--------Chars per Inch: 12 chars

    PW=8.0  LM=0.0  RM=0.0  CI=12  UJ  PL=11.0  TM=0.0  BM=2.0  LI=6  SS
Option:                 UJ: Unjustified     GB: Group Begin      BE: Boldface End
                        CN: Centered        GE: Group End        +B: Superscript Beg
PW: Platen Width        PL: Paper Length    HE: Page Header      +E: Superscript End
LM: Left Margin         TM: Top Margin      FO: Page Footer      -B: Subscript Begin
RM: Right Margin        BM: Bottom Margin   SK: Skip Lines       -E: Subscript End
CI: Chars per Inch      LI: Lines per Inch  PN: Page Number      UB: Underline Begin
P1: Proportional-1      SS: Single Space    PE: Pause Each page  UE: Underline End
P2: Proportional-2      DS: Double Space    PH: Pause Here       PP: Print Page No.
IN: Indent              TS: Triple Space    SM: Set a Marker     EK: Enter Keyboard
JU: Justified           NP: New Page        BB: Boldface Begin
```

Now type ⌘ **-M** (or ⌘ **-C**) and press the "F" key to select From clipboard (paste) and compare your screen with Figure 5-24. You'll notice that your data base report seems "folded" as it is displayed in the word processor; that is, each line of the report takes up two lines on your screen. Don't worry about it. When you print out the document, it will have the proper format. That's why you changed the values for the left and right margins and characters per inch.

FIGURE 5—24

```
File: WP Report                    REVIEW/ADD/CHANGE                    Escape: Main Menu
=====|====|====|====|====|====|====|====|====|====|====|====|====|====|====|===
File:    Repair Calls
           Page  1
Report: Weekly Report
Date     Technician  Acct. No.  Hours Billed  Labor Cost  Parts Cost     Total
Cost
-------  ----------  ---------  ------------  ----------  ----------
------------

Jun 24   Bill        83-115            2.00       90.00       55.20
145.20

Jun 25   Bill        84-200            1.00       45.00         .85
45.85

Jun 25   Bill        84-138            1.50       67.50       67.35
134.85

                                       4.50                  123.40
325.90

-------------------------------------------------------------------------------
Type entry or use @ commands              Line 4  Column  1        @-? for Help
```

EDITING THE REPORT

Now let's delete the top two lines from the report. (Remember, that's why you were doing this exercise in the first place.) Type ⌘ **-1** to move your cursor to the beginning of your document. Now type ⌘ **-D**. Press the down-arrow key three times and the left-arrow key once, so that all the text above the column headings is highlighted. (*Note:* The Printer Options should not be highlighted.) Then press RETURN (Figure 5-25).

That accomplishes the one bit of editing you wanted to do, but as long as you have the report in front of you, let's take advantage of at least one other word processing feature: underlining. Let's underline each of the "Group Total" values. You'll remember that your report printed "Group Totals" on "Hours Billed," "Parts Cost," and "Total Cost," every time the "Technician" name changed. The first "Group Total" line occurs when the "Technician" name changes from "Bill" to "Chuck." The three "Group Total" values on this line are: 4.50, 123.40, and 325.90. Move your cursor to the first digit in 4.50 and type CONTROL-**L** (hold down the CONTROL key while you type the letter "L"). You'll remember from Chapter 2 that this begins underlining and a caret symbol (^) appears to the left of 4.50 to indicate this. Now move your cursor just to the right of the zero in 4.50 and type CONTROL-**L** again. Another caret appears to indicate the ending of underlining.

In a similar manner, set up underlining for the other two values on the "Group Total" line, 123.40 and 325.90 (Figure 5-26). Notice that as

FIGURE 5—25

```
File: WP Report                    REVIEW/ADD/CHANGE                    Escape: Main Menu
=====|====|====|====|====|====|====|====|====|====|====|====|====|====|====|===
Date     Technician  Acct. No.  Hours Billed  Labor Cost  Parts Cost     Total
Cost
-------  ----------  ---------  ------------  ----------  ----------
------------

Jun 24   Bill        83-115            2.00       90.00       55.20
145.20

Jun 25   Bill        84-200            1.00       45.00         .85
45.85

Jun 25   Bill        84-138            1.50       67.50       67.35
134.85

                                       4.50                  123.40
325.90

Jun 24   Chuck       83-211            1.50       67.50      120.75
188.25

-------------------------------------------------------------------------------
Type entry or use @ commands              Line 4  Column  1        @-? for Help
```

FIGURE 5—26

```
File: WP Report                    REVIEW/ADD/CHANGE                    Escape: Main Menu
=====|====|====|====|====|====|====|====|====|====|====|====|====|====|====|===
Date     Technician  Acct. No.  Hours Billed  Labor Cost  Parts Cost     Total
Cost
-------  ----------  ---------  ------------  ----------  ----------
------------

Jun 24   Bill        83-115            2.00       90.00       55.20
145.20

Jun 25   Bill        84-200            1.00       45.00         .85
45.85

Jun 25   Bill        84-138            1.50       67.50       67.35
134.85

                                      ^4.50^                ^123.40^
^325.90^

Jun 24   Chuck       83-211            1.50       67.50      120.75
188.25

-------------------------------------------------------------------------------
Type entry or use @ commands              Line 19 Column  9        @-? for Help
```

each caret is typed, the remaining text on the line is shifted to the right. Don't worry about lining up the numbers. When the report is printed, everything will line up properly in columns.

Now move down to the two other "Group Total" lines (the line between "Chuck" and "Penney," and the line between "Penney" and the "Grand Total" line). Add underlining to the three values in the two lines. As a final touch, you can add dollar signs to the last two values in

the bottom line, the "Grand Total" line (Figure 5-27). (*Note:* Use the insert cursor to add the dollar signs in front of 728.55 and 1403.55. After you type each dollar sign, move your cursor a few spaces to the left and delete a space. This will keep the two values lined up with their respective columns.) Print out the report and compare it with Figure 5-28.

FIGURE 5—27

```
File: WP Report                    REVIEW/ADD/CHANGE                    Escape: Main Menu
=====|====|====|====|====|====|====|====|====|====|====|====|====|====|====|===
Jun 25  Chuck       85-147              1.25        56.25        45.30
101.55

                                        ^6.25^                   ^414.80^
^696.05^

Jun 24  Penney      85-109              1.00        45.00
45.00

Jun 24  Penney      84-142              1.75        78.75        79.40
158.15

Jun 25  Penney      83-101              1.50        67.50       110.95
178.45

                                        ^4.25^                   ^190.35^
^381.60^

                                       15.00*                  $728.55*
$1403.55*
--------------------------------------------------------------------------------
Type entry or use @ commands                  Line 49  Column  1       @-? for Help
```

FIGURE 5—28

Date	Technician	Acct. No.	Hours Billed	Labor Cost	Parts Cost	Total Cost
Jun 24	Bill	83-115	2.00	90.00	55.20	145.20
Jun 25	Bill	84-200	1.00	45.00	.85	45.85
Jun 25	Bill	84-138	1.50	67.50	67.35	134.85
			4.50		123.40	325.90
Jun 24	Chuck	83-211	1.50	67.50	120.75	188.25
Jun 24	Chuck	85-114	1.00	45.00		45.00
Jun 25	Chuck	83-121	2.50	112.50	248.75	361.25
Jun 25	Chuck	85-147	1.25	56.25	45.30	101.55
			6.25		414.80	696.05
Jun 24	Penney	85-109	1.00	45.00		45.00
Jun 24	Penney	84-142	1.75	78.75	79.40	158.15
Jun 25	Penney	83-101	1.50	67.50	110.95	178.45
			4.25		190.35	381.601
			15.00*		$728.55*	$1403.55*

Save "WP Report" and then remove it and the "Repair Calls" file from the Desktop with option 4 from the Main Menu.

From the Spreadsheet to the Word Processor

Now let's try cutting and pasting part of a spreadsheet into a word processing document. Suppose you wanted to send a memo to your four salespersons (from Hot & Cold Inc.) listing the total sales each salesperson was responsible for during the past month. You have the data in your "Wages Spreadsheet," so what you'll do is to start the memo in the word processor and then paste in part of your "Wages Spreadsheet."

Make a new file for the word processor, from scratch, called "Monthly Sales." Start the memo as shown in Figure 5-29. When you're through typing the last line, press the RETURN key a couple of times so that your cursor is a line or two below the last line of your document.

FIGURE 5—29

```
File: Monthly Sales              REVIEW/ADD/CHANGE              Escape: Main Menu
=====|====|====|====|====|====|====|====|====|====|====|====|====|====|====|===
To:       All Salespersons

From:     (your name)

Date:     (today's date)

Subject:  Last Month's Sales Figures

The table below shows the sales figures for last month.

--------------------------------------------------------------------------------
Type entry or use @ commands              Line 10  Column 56       @-? for Help
```

ESC back to the Main Menu and load the "Wages Spreadsheet" from your data disk. (*Note:* If you haven't created the "Wages Spreadsheet," you can use one of your own spreadsheets or follow the instructions in Chapter 4 and make the "Wages Spreadsheet" now.) You're going to print the "Salesperson" and "Monthly Sales" columns to the Clipboard so that you can paste them into your word processing document. Before you do this, type ⌘ **-O** to enter Printer Options and set the value of **PH** (Print Header) to "No." (Type **PH** and press RETURN.) The header in a

spreadsheet contains the name of the file, the page number of the report, and the report date. You won't need this information in your word processing document. ESC back to Review/Add/Change.

Place your cursor in cell A3 and type ⌘ -P. You are asked what part of your spreadsheet you want to print. Type **B** for Block. Use a combination of right- and down-arrow keys to highlight all the cells from A3 to C12 (Figure 5-30), then press RETURN (Figure 5-31).

FIGURE 5—30

```
File: Wages                              PRINT          Escape: Review/Add/Change
===========A=========B====C====D====E====F======G======H===I===J=======K======
  1|
  2|
  3|                  | Monthly | Monthly |   Monthly    | Sales ||    Gross
  4|    Salesperson   |  Sales  | Salary  | Commissions  | Bonus ||    Wages
  5|------------------|---------|---------|--------------|-------||------------
  6|Kate              |  $7,482 |  $1.000 |      $935.25 |    $0 ||   $1,935.25
  7|                  |         |         |              |       ||
  8|Bob               |  $5,572 |  $1,000 |      $696.50 |    $0 ||   $1,696.50
  9|                  |         |         |              |       ||
 10|John              | $11,003 |  $1,000 |    $1,650.45 |  $100 ||   $2,750.45
 11|                  |         |         |              |       ||
 12|Bruce             |  $3,780 |  $1,000 |      $378.00 |    $0 ||   $1,378.00
 13|                  |         |         |              |       ||
 14|                  |         |         |              |       ||
 15|                  |         |         |              |       ||
 16|                  |         |         |              |       ||
 17|                  |         |         |              |       ||
 18|                  |         |         |              |       ||
-------------------------------------------------------------------------------
C12: (Value) 3780

Use cursor moves to highlight Block, then press Return              54K Avail.
```

FIGURE 5—31

```
File: Wages                              PRINT          Escape: Review/Add/Change
================================================================================

                The information that you identified
                is 28 characters wide.

                The Printer Options values allow
                80 characters per line.


                Where do you want to print the report?

                1.  My Printer
                2.  The clipboard (for the Word Processor)
                3.  A text (ASCII) file on disk
                4.  A DIF (TM) file on disk



--------------------------------------------------------------------------------

Type number, or use arrows, then press Return                       54K Avail.
```

As in the previous exercise, select option 2, **The clipboard (for the Word Processor)**, as your print destination. Press RETURN when you are asked to type a report date, and you will see a message telling you that your report has been printed to the Clipboard. Press the space bar to return to the Review/Add/Change screen. Type ⌘ **-Q** to display the Desktop Index and select the "Monthly Sales" document.

Your cursor should still be at the bottom of your document (type ⌘ **-9** if it isn't). All you have to do now is paste in the table from the Clipboard. Type ⌘ **-C** (or ⌘ **-M**) and press the "F" key.

Leave your cursor where it is and go into Printer Options (⌘ -O). Change the left margin to 2 inches and ESC out. You can move your cursor down to the top salesperson of the month, John, and use boldface to emphasize this line of the table. Place your cursor on the first letter of "John" and type CONTROL-**B** (Figure 5-32). Because both underlining and boldface printing are turned off after a carriage return, you don't have to turn off boldface yourself. AppleWorks will do it for you. Print out your memo and compare it with Figure 5-33.

Save the "Monthly Sales" memo and then remove it and the "Wages Spreadsheet" from your Desktop.

From the Data Base to the Spreadsheet

Transferring data from a data base file to a spreadsheet (or from a spreadsheet to a data base file) requires the use of a DIF file. In this

FIGURE 5—32

```
File: Monthly Sales              REVIEW/ADD/CHANGE              Escape: Main Menu
=====|====|====|====|====|====|====|====|====|====|====|====|====|====|====|===
To:       All Salespersons

From:     (your name)

Date:     (today's date)

Subject:  Last Month's Sales Figures

The table below shows the sales figures for last month.

                          | Monthly
              Salesperson |  Sales
             -------------|---------
             Kate         |  $7,482
                          |
             Bob          |  $5,572
                          |
             ^John        |  $11,003
                          |

-------------------------------------------------------------------------------
Type entry or use @ commands          Line 20  Column 12      @-? for Help
```

FIGURE 5—33

To: All Salespersons

From: (your name)

Date: (today's date)

Subject: Last Month's Sales Figures

The table below shows the sales figures for last month.

Salesperson	Monthly Sales
Kate	$7,482
Bob	$5,572
John	$11,003
Bruce	$3,780

exercise, you will copy the data from your "Repair Calls" data base file into a spreadsheet.

You might wonder why anyone would want to do this. One reason is that there are far more calculation functions in the spreadsheet than in the data base, but it is usually easier to enter data in the data base.

In any case, load the "Repair Calls" data base onto your Desktop and type ⌘ **-P** to go to the Report Menu. Choose option 1, **Get a report format**, and then press RETURN to select the Weekly Report format. Type ⌘ **-P** to print your report and choose option 5, **A DIF (TM) file on disk**, as the destination for your report. (*Note:* If you have more than one printer installed on your copy of AppleWorks, the DIF file option will be numbered 6 or 7.)

You will be prompted for a Pathname. Type **/DATA/REPAIRS** and press RETURN. That's all you have to do in your data base file, so press ESC three times to go back to the Main Menu and choose **Add files to the Desktop**.

You want to make a new file for the spreadsheet, so take option 5. You're going to make this new spreadsheet file **From a DIF (TM) file**. Select option 2 and type the same Pathname you used to save the original DIF file, **/DATA/REPAIRS**. Name this new file "SS Repairs." Your new spreadsheet should look like Figure 5-34.

FIGURE 5—34

```
File: SS Repairs                    REVIEW/ADD/CHANGE                    Escape: Main Menu
========A========B========C========D========E========F========G========H=====
  1|Jun 24    Bill         83115         2       55.2
  2|Jun 25    Bill         84200         1        .85
  3|Jun 25    Bill         84138       1.5      67.35
  4|Jun 24    Chuck        83211       1.5     120.75
  5|Jun 24    Chuck        85114         1          0
  6|Jun 25    Chuck        83121       2.5     248.75
  7|Jun 25    Chuck        85147      1.25       45.3
  8|Jun 24    Penney       85109         1          0
  9|Jun 24    Penney       84142      1.75       79.4
 10|Jun 25    Penney       83101       1.5     110.95
 11|
 12|
 13|
 14|
 15|
 16|
 17|
 18|
--------------------------------------------------------------------------------
A1: (Label) Jun 24

Type entry or use @ commands                                        @-? for Help
```

Note that only the original data were recorded to the DIF file. Headings were not recorded, nor were calculated categories nor any totals. That's the way DIF files work.

You can, of course, modify the spreadsheet in any number of ways, including adding extra rows and columns, to create the kind of report you want. Figure 5-35 shows a typical report. Four extra rows were inserted at the top of the report so that the actual data begin in row 5. Column F is computed as $45 times the value in column D; column G is column E plus column F. The totals at the bottom use the @SUM function. Columns E, F, and G were widened and appropriate Label and Value formats were chosen to improve the look of the report. Try duplicating these features so that you can use this spreadsheet in the next exercise. Save the "SS Repairs" spreadsheet.

From the Spreadsheet to the Data Base

Suppose you now wanted to transfer rows 5 through 14 (Figure 5-35) back into a data base file. You might want to do this in order to have the two "calculated" columns, "Labor" and "Total," as part of the actual data base file. That way, if you wanted to Arrange the file in the order of greatest to least total repair cost, you could. (Remember that when "Total Cost" was a calculated category in your original "Repair Calls" data base file, you couldn't use the Arrange function on a calculated category.)

FIGURE 5—35

```
File: SS Repairs                    REVIEW/ADD/CHANGE                    Escape: Main Menu
========A========B========C========D========E==========F==========G======
  1|                              Repair Calls Weekly Report
  2|
  3| Date      Tech      Acct. #     Hours    Parts       Labor       Total
  4|=============================================================================
  5|Jun 24    Bill         83115      2.00    $55.20      $90.00      $145.20
  6|Jun 25    Bill         84200      1.00      $.85      $45.00       $45.85
  7|Jun 25    Bill         84138      1.50    $67.35      $67.50      $134.85
  8|Jun 24    Chuck        83211      1.50   $120.75      $67.50      $188.25
  9|Jun 24    Chuck        85114      1.00     $0.00      $45.00       $45.00
 10|Jun 25    Chuck        83121      2.50   $248.75     $112.50      $361.25
 11|Jun 25    Chuck        85147      1.25    $45.30      $56.25      $101.55
 12|Jun 24    Penney       85109      1.00     $0.00      $45.00       $45.00
 13|Jun 24    Penney       84142      1.75    $79.40      $78.75      $158.15
 14|Jun 25    Penney       83101      1.50   $110.95      $67.50      $178.45
 15|_____________________________________________________________________________
 16|
 17|Totals                            15.00   $728.55     $675.00    $1,403.55
 18|
-------------------------------------------------------------------------------
G17: (Value, Layout-D2) @SUM(G5...G14)

Type entry or use @ commands                                        @-? for Help
```

Place your cursor on cell A5 and type ⌘ **-P**. Then type **B** for Block. Use the right-arrow key to highlight the cells from A5 through G5. Use the down-arrow key to highlight rows 5 through 14. Then press RETURN. Again, you're going to select **A DIF (TM) file on disk** as the destination for your report. The DIF order you want is Columns, so type the letter **C**. And use "/DATA/CALLS" for the Pathname.

ESC back to the Main Menu. You're going to **Add a new Data Base file** to your Desktop. The source for this new file will be a DIF file named "/DATA/CALLS." Name this new file "Complete Repair" (Figure 5-36).

Notice that AppleWorks didn't know what you wanted to name the categories, so it chose "Category 1," "Category 2," etc. You can change these default names to something more descriptive with the ⌘ -N command. Type ⌘ **-N** and press RETURN to accept the name of the file, as is. Switch to the overstrike (blinking box) cursor mode (if you're not using it already) by typing ⌘ **-E**. Then replace the default category names with "Date," "Tech," "Acct. #," "Hours," "Parts," "Labor," and "Total." After you type each new category name, press CONTROL-Y to erase any leftover characters from the default names. Then press RETURN (Figure 5-37). When you've finished changing the last category name, ESC back to the Review/Add/Change screen (Figure 5-38). I've used the Layout command to adjust the column widths of the categories in the multiple record format display so that all seven categories are displayed.

FIGURE 5—36

```
File: Complete Repair          REVIEW/ADD/CHANGE              Escape: Main Menu

Selection: All records

Category 1     Category 2     Category 3     Category 4     Category 5
=============================================================================
Jun 24         Bill           83115          2              55.2
Jun 25         Bill           84200          1              .85
Jun 25         Bill           84138          1.5            67.35
Jun 24         Chuck          83211          1.5            120.75
Jun 24         Chuck          85114          1              0
Jun 25         Chuck          83121          2.5            248.75
Jun 25         Chuck          85147          1.25           45.3
Jun 24         Penney         85109          1              0
Jun 24         Penney         84142          1.75           79.4
Jun 25         Penney         83101          1.5            110.95

-----------------------------------------------------------------------------
Type entry or use @ commands                                   @-? for Help
```

FIGURE 5—37

```
File: Complete Repair          CHANGE NAME/CATEGORY    Escape: Review/Add/Change


Category names
=============================================================================
Date                                  |
Tech                                  | Options:
Acct. #                               |
Hours                                 | Type category name
Parts                                 | Up arrow   Go to previous category
Labor                                 |
Total                                 |
                                      |
                                      |
                                      |
                                      |
                                      |
                                      |
                                      |
-----------------------------------------------------------------------------
Type entry or use @ commands                                      51K Avail.
```

Now if you want to Arrange your data according to the values in the "Total" column, you're free to do so.

When you're ready to go on to the next (and last) example of cutting and pasting, save "Complete Repair" to your data disk and then remove all the files from your Desktop.

FIGURE 5—38

```
File: Complete Repair          REVIEW/ADD/CHANGE          Escape: Main Menu

Selection: All records

Date     Tech      Acct. #   Hours   Parts     Labor     Total
=============================================================================
Jun 24   Bill      83115     2       55.2      90        145.2
Jun 25   Bill      84200     1       .85       45        45.85
Jun 25   Bill      84138     1.5     67.35     67.5      134.85
Jun 24   Chuck     83211     1.5     120.75    67.5      188.25
Jun 24   Chuck     85114     1       0         45        45
Jun 25   Chuck     83121     2.5     248.75    112.5     361.25
Jun 25   Chuck     85147     1.25    45.3      56.25     101.55
Jun 24   Penney    85109     1       0         45        45
Jun 24   Penney    85142     1.75    79.4      78.75     158.15
Jun 25   Penney    83101     1.5     110.95    67.5      178.45

-----------------------------------------------------------------------------
Type entry or use @ commands                                  @-? for Help
```

From the Word Processor to the Data Base

A special situation may arise when you are preparing a word processing document. The document might contain a list of items, perhaps names. After you are through typing the list, you decide that you want the list to be in alphabetical order. What can you do?

You can transfer the list to a data base file and use the Arrange command. Then you can copy the alphabetized list back to the Word Processing document. Let's try it.

Figure 5-39 shows the original memo with a list of five names. Type the memo into a new word processing document called "Profit Sharing."

In order to copy the list of names to a data base file, you have to print the list to your data disk as an ASCII text file. (*Note:* The term *ASCII* is an acronym for American Standard Code for Informational Interchange.) You might wonder why you don't print out the list in DIF format as you did in previous examples. The reason is that DIF files aren't supported in the word processor. You can either print on paper with your printer or print an ASCII file to your data disk.

You don't want to print the entire memo to the ASCII file, just the list of names. To do this, place your cursor on the first character of the first name, the "L" in "Losik," and type **⌘-P**. You want to print from the cursor position to the end of your memo, so type **C** for Cursor. Select option 2, **A text (ASCII) file on disk**, type **/DATA/ASCII** for the Pathname, and press RETURN.

FIGURE 5—39

```
File: Profit Sharing          REVIEW/ADD/CHANGE          Escape: Main Menu
=====|====|====|====|====|====|====|====|====|====|====|====|====|====|===
To:       All Employees
From:     Bookkeeping Dept.
Date:     December 21
Subject:  Profit Sharing

The following persons have been employed by Hot & Cold Inc.
for at least one year.  They are therefore eligible to
participate in this company's Profit Sharing Plan.

Employee                  Date of Hire
-----------------------------------
Losik, Dennis             3/5/83
Crail, Steve              4/25/83
Drury, Tom                10/2/83
Sumner, Elizabeth         5/14/84
Rose, Ellen               9/3/84


--------------------------------------------------------------------------------
Type entry or use @ commands          Line 1  Column  1       @-? for Help
```

After the file has been recorded on your data disk, ESC to the Main Menu and select option 1. You're going to make a new data base file **From a text (ASCII) file**. You'll be asked, "How many categories per record?" Since each record will contain just the name of the employee (along with the date of hire), respond with "1" and press RETURN (Figure 5-40). The ProDOS Pathname for the ASCII file is "/DATA/ASCII." Call your new data base file "Names."

Your screen should look like Figure 5-41. I know it looks as if only the names of the employees were transferred to the data base, but the dates of hire are there, too. In the multiple record format screen, which you are looking at now, only the first 16 characters of a category are displayed. Type **-L**, the Layout command. Then hold down the OPEN-APPLE key and press the right-arrow key about 18 times until the dates appear. Then ESC back to Review/Add/Change. The point of this example was to alphabetize the list of names, so type **-A** and press RETURN to accept the Arrangement order **From A to Z** (Figure 5-42).

Now that the list is alphabetized, you want to paste it back into your "Profit Sharing" memo. To do this, you'll have to print the data base file to the Clipboard. Then you can paste from the Clipboard into your memo.

Type **-P** to get to the Report format screen. Choose option 2 and name the new tables report "Clipboard." Hold down the OPEN-APPLE key and press the right-arrow key until the Length Indicator shows a value of 35 (Figure 5-43).

FIGURE 5—40

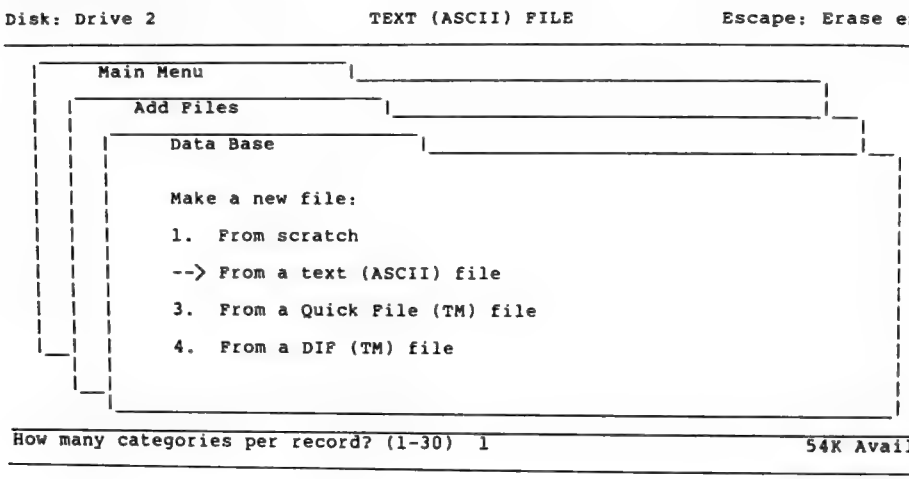


FIGURE 5—41

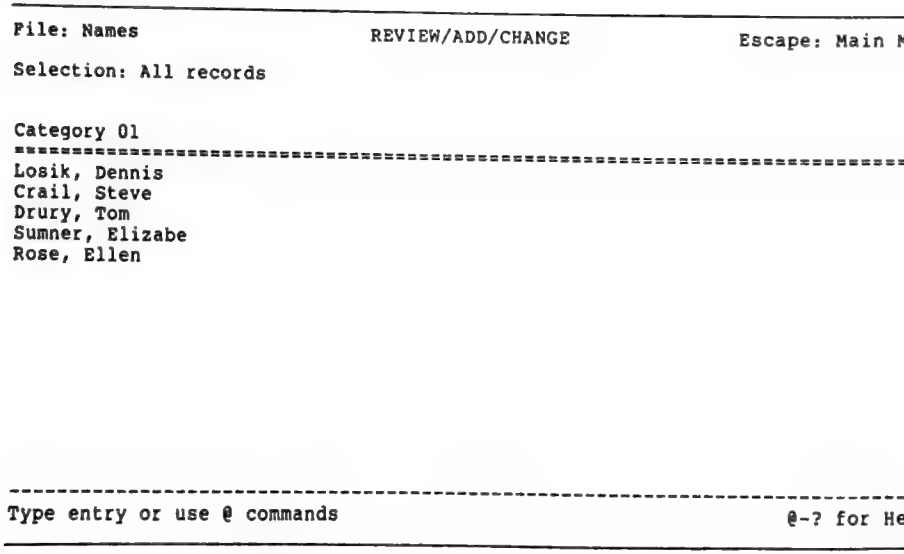


FIGURE 5—42

```
File: Names                    REVIEW/ADD/CHANGE              Escape: Main Menu

Selection: All records

Category 01
================================================================================
Crail, Steve              4/25/83
Drury, Tom                10/2/83
Losik, Dennis             3/5/83
Rose, Ellen               9/3/84
Sumner, Elizabeth         5/14/84

--------------------------------------------------------------------------------
Type entry or use @ commands                                        @-? for Help
```

FIGURE 5—43

```
File: Names                      REPORT FORMAT              Escape: Report Menu
Report: Clipboard
Selection: All records

================================================================================
--> or <--  Move cursor                      @-J  Right justify this category
 >  @   <   Switch category positions        @-K  Define a calculated category
--> @  <--  Switch column width              @-N  Change report name and/or title
@-A  Arrange (sort) on this category        @-O  Printer options
@-D  Delete this category                   @-P  Print the report
@-G  Add/remove group totals                @-R  Change record selection rules
@-I  Insert a prev. deleted category        @-T  Add/remove category totals
--------------------------------------------------------------------------------

Category 01                          L
-A-------------------------------- e
Crail, Steve              4/25/83    n
Drury, Tom                10/2/83    3
Losik, Dennis             3/5/83     5

--------------------------------------------------------------------------------
Use options shown above to change report format                     54K Avail.
```

You don't want a report header to be printed with your list of names, so type ⌘ **-O** to get to Printer Options. Type **PH** and press RETURN to change the value of the Print Report Header option to "No." Then ESC back to the Report format screen. Now type ⌘ **-P** and send your report to **The Clipboard (for the Word Processor)**. This should be option 3 on the Print the Report screen. (*Note:* If you see a message to

type in a report date, then you didn't set the **PH** option to "No." ESC out and try again.)

After you see the message telling you that your report is on the Clipboard, press the space bar. Type ⌘ **-Q** and select the "Profit Sharing" document from the Desktop Index. Your cursor should still be on the "L" in "Losik" (move it there if it isn't). Now delete the list of names from your memo with the Delete command. Type ⌘ **-D**, press the down-arrow key five times, and press RETURN. To paste in the alphabetized list from the Clipboard, type ⌘ **-M** and **F** (Figure 5-44).

FIGURE 5—44

```
File: Profit Sharing          REVIEW/ADD/CHANGE              Escape: Main Menu
======|====|====|====|====|====|====|====|====|====|====|====|====|====|====|===
To:       All Employees
From:     Bookkeeping Dept.
Date:     December 21
Subject:  Profit Sharing

The following persons have been employed by Hot & Cold Inc.
for at least one year. They are therefore eligible to
participate in this company's Profit Sharing Plan.

Employee                  Date of Hire
---------------------------------------
Crail, Steve              4/25/83
Drury, Tom                10/2/83
Losik, Dennis             3/5/83
Rose, Ellen               9/3/84
Sumner, Elizabeth         5/14/84


--------------------------------------------------------------------------------
Type entry or use @ commands          Line 13  Column  1       @-? for Help
```

Final Comments

There is, theoretically, one more way of using Cut and Paste, from the word processor to the spreadsheet. Practically, however, this exchange of data can't be done. The only type of data file that can be written from a word processor file is an ASCII text file, but spreadsheets can only accept DIF files or VisiCalc files. (You'll learn about VisiCalc files in the next chapter.)

The ease with which you can cut and paste between AppleWorks documents is one of the major advantages of this integrated software package. Practice each of the above examples until you are comfortable doing them. This will be time well spent.

CHAPTER

6 APPLEWORKS AND THE OUTSIDE WORLD

One way of judging the overall usefulness of a computer program such as AppleWorks is to see how (or if) it can be used with other existing computer programs. In this chapter, you'll see how to use AppleWorks with different programs and hardware products.

The first section of the chapter discusses how to convert files between ProDOS and DOS 3.3. This is a skill you'll have to master in order to use AppleWorks in conjunction with other programs such as Business Graphics and VisiCalc.

Section two shows you how to use AppleWorks with nine different, popular programs. Three of them, Apple Writer, VisiCalc, and Business Graphics, have been around for several years. A fourth, Access //, is a typical data communications package. The Graphics Department is a full-featured graphics arts program. Quick File was written by the same author who wrote AppleWorks and is similar to its Data Base section. The Sensible Speller is a program that checks for correct spelling in word processor documents. The remaining two, MegaWorks and HabaMerge, are programs that were developed specifically to enhance the capabilities of AppleWorks.

The last section of the chapter describes several pieces of computer hardware that can increase the usefulness of AppleWorks.

I. CONVERTING FILES BETWEEN DOS 3.3 AND PRODOS

Before you try to use AppleWorks files with other programs (or other programs' files with AppleWorks), you need to understand a bit about your Apple's disk operating system. The disk operating system of a computer controls the way data are stored on, and retrieved from, your disk. You may remember, back in Chapter 1, that you formatted a data disk for AppleWorks. It was the disk operating system that told your Apple computer how to format the disk. When you type  -S to save a file, it's the disk operating system that knows how to record your file onto your data disk.

The reason for this discussion is that there is more than one disk operating system for your Apple computer. AppleWorks was written under the ProDOS operating system, while programs such as VisiCalc were written under an older operating system called *DOS 3.3*. If you want to exchange data between AppleWorks and programs such as VisiCalc, you'll have to learn how to convert your data files from one operating system to the other.

Fortunately, you have a program that will perform this conversion for you. If you own an Apple][+ or //e computer, this program is on the ProDOS User's Disk. If you have an Apple //c, the conversion program is part of the System Utilities disk.

One of the first things to remember, when you want to convert files from one operating system to the other, is that only certain types of files can be converted. Specifically, text files (and binary files) can be converted. AppleWorks files are *not* standard text files, and this means they cannot be converted from ProDOS to DOS 3.3. But you *can* convert an AppleWorks ASCII text file from ProDOS to DOS 3.3 (and back), and all three AppleWorks applications allow you to print their files to disk as ASCII text files. These files, and DIF files produced from the Data Base and Spreadsheet sections of AppleWorks (see Chapter 5), can be converted from ProDOS format to DOS 3.3.

When you convert the other way, from DOS 3.3 to ProDOS, you'll be able to convert virtually any type of file—ASCII, DIF, or even VisiCalc files. In DOS 3.3, these files are all saved as text files, so converting isn't a problem. Converting Quick File files for use with the Data Base section of AppleWorks is even easier—you don't convert them at all. AppleWorks will use Quick File files exactly as they are.

Before you begin converting files between DOS 3.3 and ProDOS, take two blank disks and label one of them "ProDOS Files (converted from DOS 3.3)." Label the other disk "DOS 3.3 Files (converted from ProDOS)."

Now, depending on which computer system you have, read the section below that explains how to convert files between DOS 3.3 and ProDOS for your computer.

Converting with an Apple][+ or //e

If you have an Apple][+ or //e computer system, you'll use the ProDOS User's Disk to do your converting. Boot up your copy of the ProDOS User's Disk and look at the first screen that's displayed on your monitor. This first screen tells you the version of ProDOS you are using. It should say:

APPLE //
PRODOS 1.1.1 18-SEP-84

or a later version of ProDOS (ProDOS 1.1.1 is the current version as I write this). Earlier versions of ProDOS had some problems converting files from DOS 3.3 to ProDOS. If you have an early version of ProDOS, make a copy of your ProDOS User's Disk, take it to your local Apple

dealer, and ask him to use the ProDOS Update Utility to update your disk to version 1.1.1 (there is no charge for this).

Before you go off to your dealer, check around and see if you have a copy of the DOS 3.3 System Master disk. If you don't, take a blank disk with you when you go to your dealer and ask if you can get a copy of the DOS 3.3 System Master. You'll need it to format one of those two blank disks mentioned above. (*Note:* Actually, almost any bootable DOS 3.3 disk can be used to format your blank disk. If you are familiar with DOS 3.3, you probably know how to format disks. If you're not familiar with DOS 3.3, get a copy of the System Master.)

Now you'll format the two blank disks you labeled "DOS 3.3" and "ProDOS." Insert the DOS 3.3 System Master disk in drive 1 and turn on your Apple //e (if it's already on, press the OPEN-APPLE, CONTROL, and RESET keys together to reboot your system. Apple][+ users just press CONTROL and RESET). After about 15 seconds or so, your screen should look like Figure 6-1. Remove the System Master disk from your disk drive and put in the blank disk you labeled "DOS 3.3 Files (converted from ProDOS)." Type the three-letter command **NEW** and press the RETURN key. Then type the disk formatting command, **INIT HELLO** (use all capital letters) and again press RETURN. After about 30 seconds, the disk drive will stop spinning and your disk will be formatted under DOS 3.3.

FIGURE 6—1

```
                    APPLE II

            DOS VERSION 3.3  SYSTEM MASTER

                    JANUARY 1, 1983

        COPYRIGHT APPLE COMPUTER,INC. 1980,1982

                BE SURE CAP LOCK IS DOWN

        ]NEW

        ]INIT HELLO

        ]
```

Let's format the other disk. Remove the DOS 3.3 disk from your disk drive, insert the ProDOS User's Disk, and reboot the system (press OPEN-APPLE, CONTROL, and RESET, together). Your screen should look like Figure 6-2.

Press the "F" key to enter the ProDOS Filer (Utilities). Remove the ProDOS User's Disk and insert the blank disk you labeled "ProDOS Files (converted from DOS 3.3)" into drive 1. Type **V** for Volume Commands (don't press RETURN), then type **F** for Format a Volume.

Type **61** (don't press RETURN). The filer will choose a default ProDOS Volume Name, probably "BLANK00." Type the new Volume Name **CONVERTED.FILES** and press RETURN. If your "blank" disk has been previously formatted, you will see a warning message asking you if it's all right to reformat the disk. Just press the "Y" key. After about 30 seconds, you'll see the message "FORMAT COMPLETE" (Figure 6-3).

Now you're ready to convert files from one disk operating system to another. For practice, let's copy files from your AppleWorks data disk

FIGURE 6—2

```
****************************************
*                                      *
*          PRODOS USER'S DISK          *
*                                      *
* COPYRIGHT APPLE COMPUTER, INC. 1983  *
*                                      *
****************************************

YOUR OPTIONS ARE:

     ? - TUTOR: PRODOS EXPLANATION

     F - PRODOS FILER (UTILITIES)

     C - DOS <-> PRODOS CONVERSION

     S - DISPLAY SLOT ASSIGNMENTS

     T - DISPLAY/SET TIME

     B - APPLESOFT BASIC

PLEASE SELECT ONE OF THE ABOVE
```

FIGURE 6—3

```
****************************************
*                                      *
*          FORMAT A VOLUME             *
*                                      *
****************************************

--FORMAT--
  THE VOLUME IN SLOT: (6)
                DRIVE: (1)


  NEW VOLUME NAME:    /CONVERTED.FILES


FORMAT COMPLETE


    --PRESS < RET > TO ACCEPT:< ESC > TO EXIT--
```

(which is in ProDOS format) to the "DOS 3.3 Files" disk. The instructions below assume your computer system has *two disk drives.*

If you have a single-drive system, you've got a small problem. The current version of the ProDOS Utilities does not allow you to convert files between DOS 3.3 and ProDOS with a single drive (at least, I couldn't figure out how to do it!). So, if you need to convert files and you have only one disk drive, you'll have to either borrow a second drive or take your files to your local Apple dealer and ask if you can use Apple equipment to convert the files. Most dealers will be happy to let you do this. (It gets you into their stores, and, who knows, you might buy something.)

So, assuming your computer system has two disk drives, place the ProDOS User's Disk back in drive 1 and reboot the system. This time, press **C** to select DOS < - > ProDOS Conversion (Figure 6-4). The second, third, and fourth lines on the screen tell you what the Convert program will do if you select "T" for Transfer (don't do it yet).

Line two says that it will convert DOS 3.3 files to ProDOS files. That's the opposite of what you want it to do. You want it to convert files on your ProDOS-formatted AppleWorks data disk to a DOS 3.3 disk. To reverse the direction of the transfer, press the "R" key. Note the change in direction on line two.

FIGURE 6—4

```
                CONVERT Menu
Direction: DOS 3.3 S6,D2 --->ProDOS
Date: <NO DATE>
Prefix: /USERS.DISK/

---------------------------------------


   R - Reverse Direction of Transfer

   C - Change DOS 3.3 Slot and Drive

   D - Set ProDOS Date

   P - Set ProDOS Prefix

   T - Transfer (or List) Files


---------------------------------------

Enter Command: ?    ? - Tutor,  Q - Quit
```

Remove the ProDOS User's Disk from drive 1 and insert your AppleWorks data disk. Line four should indicate the Volume Name (Prefix) of your data disk. Right now, though, it's showing the Volume Name of the ProDOS User's Disk. (*Note:* All disks formatted under ProDOS are given a name, their Volume Name, when they are formatted.) Type **P** to Set ProDOS Prefix. Then type **S** to set the prefix by Slot and Drive. With your AppleWorks data disk in drive 1, type **61** and watch the Prefix on line four change to "/DATA/" (or whatever you named your data disk) (Figure 6-5). Insert the "DOS 3.3 Files" disk you formatted earlier into drive 2.

Now type **T** to transfer files. You'll be asked, "What ProDOS file(s)?" Press the RETURN key to see a list of all the files on your data disk. Each line of the list contains three pieces of information about the particular file: the name of the file, the file type, and the date the file was created or last updated. The important thing to look for, right now, is the file type. Most of the file types will be **$19**, **$1A**, or **$1B**. These three file types are

FIGURE 6—5

```
                CONVERT Menu
Direction: ProDOS --- >DOS 3.3 S6,D2
Date: <NO DATE >
Prefix: /DATA/

----------------------------------------


   R - Reverse Direction of Transfer

   C - Change DOS 3.3 Slot and Drive

   D - Set ProDOS Date

   P - Set ProDOS Prefix

   T - Transfer (or List) Files


----------------------------------------

Enter Command: ?    ? - Tutor,  Q - Quit
```

special AppleWorks files and you should not attempt to transfer them to the DOS 3.3 disk.

If you've done the exercises in the last chapter, you'll have at least one file of the type **TXT**. This indicates a *text* file, which is the only file type you should try to convert at this time. (*Note:* If you haven't done the exercises in Chapter 5, boot up AppleWorks. Load a word processing file from your data disk. Then print the file, ◆ -P, to **A text (ASCII) file on disk**. Use the Pathname "/DATA/ASCII.")

The first file on the disk will be highlighted. To move the highlight bar up and down through the list of file names, use the left- and right-arrow keys (or the up- and down-arrow keys). To choose a particular file to be transferred, press the space bar when that file is highlighted. Figure 6-6 shows a typical list of files with two of them, DIF and ASCII, chosen to be converted to DOS 3.3 format. (*Note:* You can de-select a file by pressing the space bar again, while the file is highlighted.)

FIGURE 6—6

```
        Transfer (or List) Files
Direction: ProDOS --- >DOS 3.3 S6,D2
Date: < NO DATE >
Prefix: /DATA/
                              ESC: CONVERT Menu
---------------- More -----------------
      FORMATTED.MEMO   $1A 12-FEB-85
      PRICING.POLICY   $1A 19-FEB-85
      CUSTOMER.LIST    $19 19-FEB-85
      CUSTOMERS.84     $19 19-FEB-85
      CUSTOMERS.85     $19 19-FEB-85
    ->DIF              TXT 24-FEB-85
      WEEKLY.SUMMARY   $1B 24-FEB-85
      REPAIR.CALLS     $19 03-MAR-85
      MONTHLY.SALES    $1A 03-MAR-85
      REPAIR           TXT 03-MAR-85
      REPAIRS          TXT 03-MAR-85
      SS.REPAIRS       $1B 03-MAR-85
      CALLS            TXT 03-MAR-85
      COMPLETE.REPAIR  $19 03-MAR-85
    ->ASCII            TXT 04-MAR-85
---------------- More -----------------

Enter Command:                  ? - Help
```

When you have selected the files you want to convert, press the RETURN key. (*Note:* If you get an error message that says NO ROOM ON VOLUME, it means that the Convert program couldn't find your DOS 3.3-formatted disk. Press the ESC key, make sure you have a DOS 3.3-formatted disk in drive 2, and try again.)

The files you have selected have been transferred to the DOS 3.3 disk and can now be used by any DOS 3.3-based program that can read standard ASCII or DIF files. (*Note:* The original ProDOS files are still on your AppleWorks data disk.)

If you want to transfer files from a DOS 3.3 disk to a ProDOS disk, there is only one change in the above procedure that you have to make. Just change the direction of the transfer (by pressing the "R" key) so that line two on your screen reads:

Direction: DOS 3.3 S6,D2---> ProDOS.

Place the newly formatted ProDOS disk you labeled "ProDOS Files" in drive 1 and the DOS 3.3 disk with the files you want converted in drive 2, and perform the entire process described above.

Converting with an Apple //c

If you own an Apple //c, converting files between DOS 3.3 and ProDOS is a snap. All you'll need are the System Utilities disk, one of the two blank disks you labeled "DOS 3.3 Files" and "ProDOS Files" (the one you use depends on which direction you're converting the files), and the disk with the original files on it.

CONVERTING AN ENTIRE DISK

For practice, let's copy files from your AppleWorks data disk (which is in ProDOS format) to the diskette you labeled "DOS 3.3 Files." While this file transfer process is easier if your computer system has two disk drives, it can be accomplished with a single drive. The first time you transfer files, you'll have the Utilities program format your Destination disk before it transfers files to it.

(*Note:* The Apple //c System Utilities program refers to disks as being either Source or Destination disks. The Source disk is always the disk with the original file or files on it. The Destination disk is the disk you're transferring the files to.)

Boot up the System Utilities disk on your Apple //c. In the example, you will attempt to transfer all of the files from your ProDOS-formatted AppleWorks data disk onto a DOS 3.3-formatted disk. You'll notice that the eight operations listed in the Main Menu of System Utilities are divided into two groups: those that work on individual files (the first four) and those that work on entire disks (the next four). Since you're going to convert an entire disk of ProDOS files to DOS 3.3, your choice from the Main Menu has to be in the second set of four options. Select option 8, **Advanced Operations**. (*Note:* In the System Utilities program, all menu choices are made by typing the number of the option (or using the up- and down-arrow keys) and pressing RETURN.)

From the Advanced Operations Menu, select option 3, **Change a Disk's Format**. System Utilities allows you to change the format of a disk's files in one of three ways. For this exercise, choose option 3, **ProDOS -> DOS 3.3.**

Now you have to tell the program where your Source and Destination disks are going to be. Your Source disk (your AppleWorks data disk) will go in the **Built-in Drive**, which is option 1. If you have a second disk drive in your computer system, your Destination disk will go in the **External Drive**, option 2. If you don't have an external disk drive, your Destination disk will be the **Built-in Drive**, option 1.

From this point on, follow the instructions that will appear on your screen. If you have a two-drive computer system, you will be instructed

to place the Source disk in the built-in drive and the DOS 3.3 disk in the external drive. If the disk you are using for your DOS 3.3 files has been previously formatted, you will be asked to confirm that it is all right to reformat it. The DOS 3.3 disk will then be formatted, and, one at a time, the files on your AppleWorks data disk will be copied over to the DOS 3.3 disk. But only *text* files will be copied. As discussed above, AppleWorks-type files will not be transferred. The program will look at all the files on your AppleWorks data disk and transfer only those files that are of type text. It will show you an error message (Figure 6-7) for each file that is *not* a standard text file. It will then ignore that file and proceed with the next file on the disk.

FIGURE 6—7

```
Incompatible File Type

Only files that have a corresponding file type on the destination
disk can be copied. For example, DOS 3.3 Text and Binary files can
be copied to ProDOS disks, since ProDOS supports Text and Binary
files.

Press RETURN to continue.
```

If you have a single-drive system, the only difference is that you will be instructed, from time to time, to switch the Source and Destination disks in the built-in drive. Watch the instructions on your screen, and be sure to put the correct disk in the drive at the right time.

CONVERTING INDIVIDUAL FILES

Suppose you only wanted to convert one or two files from your AppleWorks data disk to your DOS 3.3-formatted disk. System Utilities makes this an easy process, too. Press the ESC key until you are back to the Main Menu. This time, select option 1, **Copy Files**. Again tell the program that your Source disk will be in the built-in drive and place your AppleWorks data disk in the built-in drive. When the program asks for the location of your Destination disk, answer, "External Drive" (if you have an external drive) or "Built-in Drive" (if you don't).

You'll be asked whether you want to copy "Some" or "All" of the files. Choose "Some." The program will then display the names of all the files on the Source disk for you to see. You can move through the list by using the up- and down-arrow keys, and you can select those files you want to convert by pressing the right-arrow key when the file is

highlighted. (*Note:* A selected file is indicated by a check mark to the left of the file name. You can de-select a file with the left-arrow key.)

When you have made your choice (remember, only *text* files can be converted from ProDOS to DOS 3.3), press RETURN, and the copying process will begin. If you have a single-drive system, you will be instructed to insert the Source and Destination disks alternately into the built-in drive.

CONVERTING FILES FROM DOS 3.3 TO PRODOS

If you want to convert an entire disk of DOS 3.3 files to a ProDOS disk, the only change is to select option 2, **DOS 3.3 -> ProDOS**, instead of option 3 when you choose how you're going to **Change a Disk's Format**.

When you use the Copy Files utility to convert individual DOS 3.3 files to ProDOS, the only change in the above procedure is that you'll identify your *Source* disk as the DOS 3.3 disk, and your *Destination* disk as the disk you labeled "ProDOS Files." Remember that the first time you convert files in one direction or the other, you must use the **Advanced Operations** option to convert the files so that System Utilities will format your Destination disk. Once the disk has been formatted, you won't have to format it again, so you can use the **Copy Files** option from then on.

II. USING APPLEWORKS WITH OTHER PROGRAMS

In this section, you'll learn how to use your AppleWorks program with other software programs. The nine programs discussed here fall into three categories. With Apple Writer, Quick File, and VisiCalc, you'll be transferring data files from the application to AppleWorks. It'll be just the reverse with Business Graphics, the Graphics Department, and Access //—you'll be converting AppleWorks files to use with these programs. The last three examples, MegaWorks, HabaMerge, and Sensible Speller, are programs that add features and extend the usefulness of AppleWorks.

Word Processing: Apple Writer

Apple Computer has brought out several versions of this popular word processing program. The earliest version (Apple Writer 1.0) dates

back to 1979 and was written under DOS 3.2. This program was revised twice: once as Apple Writer 1.1, still in DOS 3.2, the second time as Apple Writer 1.1 but in DOS 3.3 format. However, files created with any of these early versions of Apple Writer are incompatible with AppleWorks. These versions of Apple Writer did not produce standard ASCII text files.

In 1981, the program was completely rewritten by Paul Lutus and was titled Apple Writer][. This version and all succeeding versions did use ASCII text files for their document file format. In 1982, Apple introduced a version of Apple Writer, still in DOS 3.3, called Apple Writer //. This version sported new features and could be run only on an Apple //e. Two years later, a ProDOS version of this program, called Apple Writer 2.0, appeared for the Apple //e and //c, and a year later, version 2.1 was released to correct a bug in version 2.0.

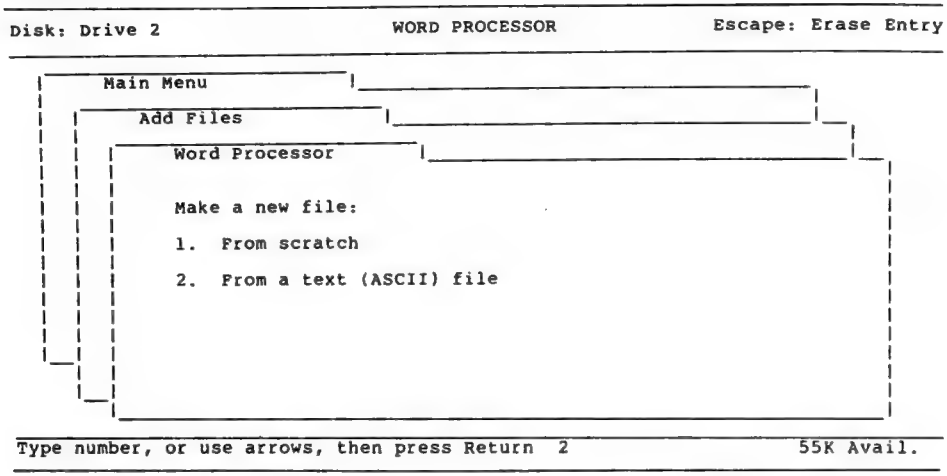
Starting with the 1981 release of Apple Writer][, all versions up to the present create files that can be used by AppleWorks. Files from the DOS 3.3 versions of Apple Writer require converting to ProDOS format, but files from versions 2.0 and 2.1 can be read directly by AppleWorks. If your copy of Apple Writer (or any other word processor that produces ASCII text files) is in DOS 3.3, refer to the discussion in the first part of this chapter and convert the files from DOS 3.3 to ProDOS.

Here's how to get AppleWorks to read a standard ASCII text file from a ProDOS disk. (*Note:* In the following exercises, I'm going to assume that the ProDOS disk with files from your Apple Writer or VisiCalc programs has been given the volume name "CONVERTED.FILES." If you are using a disk with a different volume name, substitute your disk's volume name any time you see "CONVERTED.FILES" used.) Boot up AppleWorks and select option 1 from the Main Menu. From the Add Files Menu choose option 3, **Make a new file for the Word Processor**. From the Word Processor Menu (Figure 6-8), tell AppleWorks that you want to make a new file **From a text (ASCII) file.**

Insert the "CONVERTED.FILES" data disk in the drive indicated at the top left of your screen. At the bottom of the screen, AppleWorks will ask you for the Pathname of the ASCII file. Remember that a Pathname consists of the volume name of the disk plus the name of the file. If the file's name was "MY.RESUME," the Pathname would be: "/CONVERTED.FILES/MY.RESUME." After you press the RETURN key, AppleWorks will ask you to name the word processing file. You can give it any legitimate AppleWorks name. And that's all there is to it.

Here's a point to remember: Most word processors, including Apple Writer, allow you to insert *control characters* into the text. These control characters are used to send special commands to your printer. When you save the original word processing file to disk, the control

FIGURE 6—8



characters are saved along with the rest of the text. But when you read the file into AppleWorks, all imbedded control characters are changed into number (#) symbols.

Getting a word processor to read AppleWorks word processing files is almost as easy as going the other way. The only snag is that ordinary AppleWorks files are *not* standard ASCII files. This means that other word processors can't read them. The solution is to print your AppleWorks word processing file to disk, using the option from the Print Menu (usually option 2) that says **A text (ASCII) file on disk**. You'll be asked to supply a Pathname for the ASCII file ("/DATA/SAMPLE," for example).

Once the file has been printed to disk as an ASCII file, you can convert it to DOS 3.3 (if your word processor is in that format) and then have your word processor read the file, just as if it had originally created it.

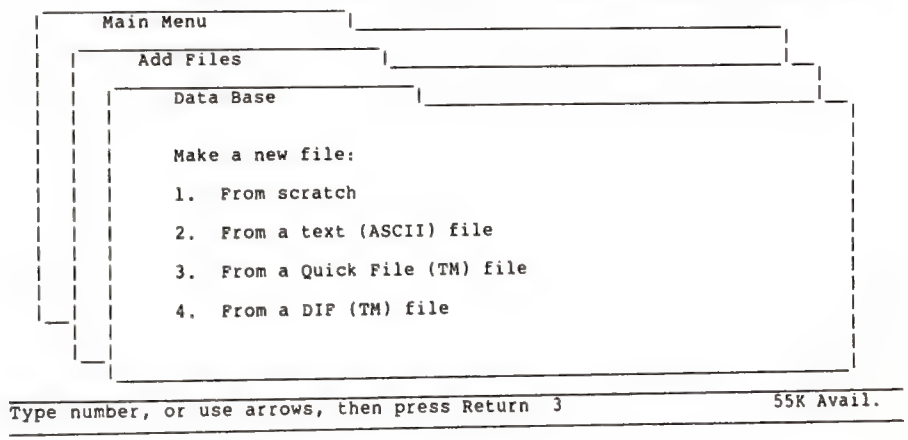
Data Base: Quick File

If you bought an Apple //e before AppleWorks was released and you needed a data base program, you probably purchased Quick File //e. This program, written by Rupert Lissner, the author of AppleWorks, was the forerunner of the Data Base section of AppleWorks. Several features are available to AppleWorks users that were not available to

owners of Quick File. In addition to having a much improved report-generating section, AppleWorks allows you to combine two or more data base files into one large file (up to the limit of your Apple's memory) by using the Cut and Paste feature. With Quick File, there was no way to merge separate files.

Transferring files from Quick File to AppleWorks is fairly simple. Boot AppleWorks and select option 1, **Add Files**, from the Main Menu. Tell AppleWorks you want to create a new data base file by choosing option 4 from the Add Files Menu. Now, from the Data Base Menu (Figure 6-9) select option 3, **From a Quick File (TM) file**. After you select this option, place your Quick File data disk in the drive indicated at the upper left corner of your screen, and press the space bar.

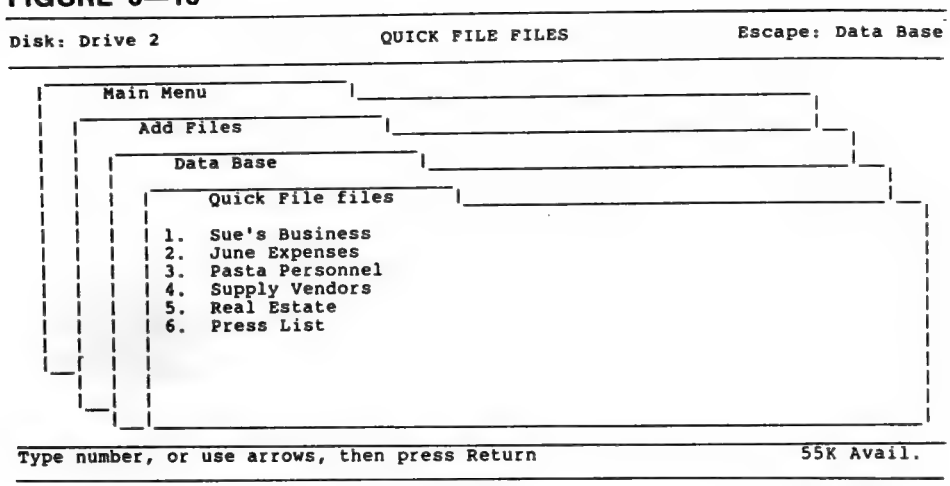
FIGURE 6—9



AppleWorks will show you a list of the Quick File files on that disk (Figure 6-10). Type the number of the file you want, and press RETURN. Then type a name for your AppleWorks data base file. (*Note:* The AppleWorks name can be the same as the Quick File name, but remember that an AppleWorks file name is made up of letters, numbers, periods, and spaces, only.) That's all there is to it.

If you want to transfer more than one Quick File file, you'll need to repeat the entire process for each file. This means that each Quick File file will be a separate AppleWorks data base file. If you want to combine two or more of them into a single file, you can use the Cut and Paste feature to cut the data from one file into the Clipboard, switch to another file, then paste the Clipboard into this file.

FIGURE 6—10



Report formats are also transferred, even though Quick File measures vertical spacing values (top margin, page length, etc.) in lines, while AppleWorks measures these parameters in inches. The transfer process does the conversion automatically by assuming that your printer moves paper vertically at the rate of 6 lines per inch.

By the way, this process of transferring data files from Quick File to AppleWorks works just as well (and uses exactly the same steps) with Quick File /// (written for the Apple /// computer) as it does with Quick File //. Bear in mind, though, that you can't convert data base files the other way—from AppleWorks to either Quick File // or Quick File ///. That utility hasn't been written.

Spreadsheet: VisiCalc

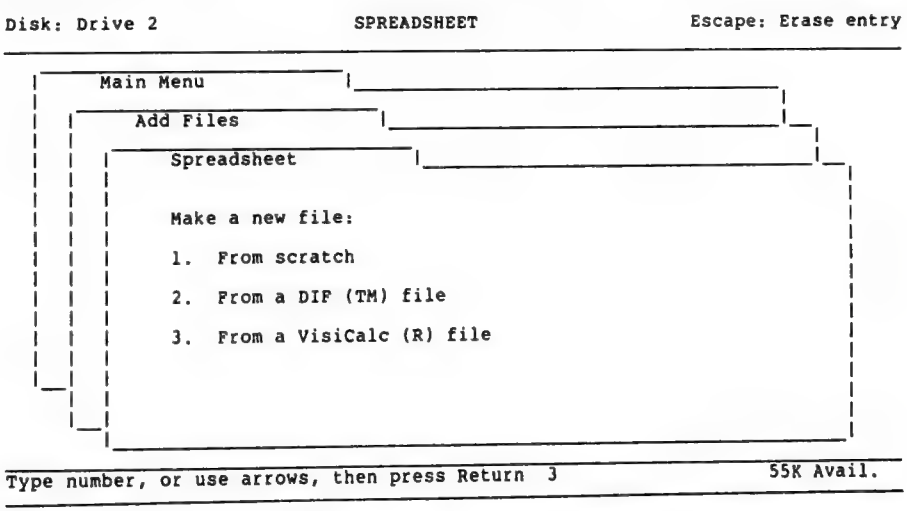
In 1979, a company named Software Arts, Inc., developed a computer program that allowed personal computers to perform a completely new and different type of function—that of an electronic spreadsheet. They called their program VisiCalc, and it soon became the hottest selling piece of computer software in the industry. The first version of VisiCalc was written for the Apple][under DOS 3.2. Later versions were released under DOS 3.3, and when Apple brought out the Apple //e, there was a version of VisiCalc written to take advantage of the //e's special features. Recently, a ProDOS version of VisiCalc, called Flash-

Calc, was released. All versions of VisiCalc, beginning with the first version written under DOS 3.3, produce files that can be read by the Spreadsheet section of AppleWorks.

If your version of VisiCalc is a DOS 3.3 version, you'll have to transfer the file to a ProDOS disk (the disk you named "CONVERTED.FILES") as explained earlier in this chapter. If you're using FlashCalc, you can use the data file, just as it is, from your FlashCalc data disk. Once you have the VisiCalc file on a ProDOS disk, either on the "CONVERTED.FILES" disk or on the FlashCalc data disk, it's easy to read the file into AppleWorks.

From AppleWorks' Main Menu, choose option 1. Then, from the Add Files Menu, select option 5, **Make a new file for the Spreadsheet**. From the Spreadsheet Menu (Figure 6-11) select option 3, **From a VisiCalc (R) file**. At the bottom of the screen, you'll be asked for the Pathname of the VisiCalc file. Type it in (see the above discussion on Pathnames) and press RETURN. Then type a name for the new AppleWorks spreadsheet. That's it.

FIGURE 6—11



Your spreadsheet will look exactly the same in AppleWorks as it did in VisiCalc. Labels, values, *and* formulas are transferred.

You may wonder what the difference is between reading a VisiCalc file into AppleWorks and reading a DIF file (written by VisiCalc) into AppleWorks. Both procedures work, but DIF files contain only labels and values—not formulas.

Unfortunately, if you want to read a spreadsheet file from AppleWorks into VisiCalc, the only way is to use DIF files. Print all or part of

your AppleWorks spreadsheet to disk as a DIF file (use Row order). Convert the file from ProDOS to DOS 3.3 if necessary, and then load the file into VisiCalc by typing **/S#L (file name) R**.

If you are unfamiliar with commands in VisiCalc, here is an explanation of the above command, character by character. The slash ("/") tells VisiCalc that what follows is to be treated as a command, as opposed to a label or a value. The "S" indicates a disk command (saving, loading, etc.). The "#" tells VisiCalc to expect a DIF file instead of a standard VisiCalc file. The "L" selects "Load" from the choice of "Load" or "Save." The file name is the name of the DIF file. If you can't remember the name, type **,D1** or **,D2** (depending on whether your data disk is in drive 1 or drive 2) and press RETURN. Visicalc will show you the name of the first file on the disk. If this is the file you want, press the RETURN key. If not, press the right-arrow key, and the name of the next file on the disk will be displayed. After you have selected the DIF file you want VisiCalc to read, type **R** to indicate that the DIF file was saved in Row order.

Remember that DIF files contain only labels and values. Any formulas in your original spreadsheet are evaluated, and their values placed in their respective cells.

Graphics: Business Graphics and the Graphics Department

I've selected two graphics programs to discuss here: Business Graphics from Apple Computer and the Graphics Department from Sensible Software. Both programs can create graphs with data from an AppleWorks spreadsheet. Business Graphics has been available since 1981 and is a general purpose graph plotter. The Graphics Department is a newer program whose latest version was released in 1985. Its features include multicolor three-dimensional graphs, custom lettering (with a large choice of font styles and sizes), the overlaying of two or more graphs, painting, free-hand drawing, and many others. It will even use the Apple mouse.

To plot any graph you need two sets of data, one for the horizontal axis, the other for the vertical axis. Usually, the data for the horizontal axis are labels while the vertical axis data are numerical values. Normally, you would type in the sets of labels or values from the keyboard and then have your graphics program draw the graph for you.

There are times, such as when you're working with a spreadsheet, that a graph of the data would be really useful. You could write down or print out the data and then retype it into your graphics program. But

there is an easier way. You can save the data from your AppleWorks spreadsheet as a DIF file, convert it to DOS 3.3 format, and then read it into either Business Graphics or the Graphics Department.

You might wonder whether this procedure actually saves time, compared with retyping the data. The answer, of course, depends on how fast and accurate a typist you are and how large the data set is.

With both graphics programs, we'll use data from the Sales Proj. spreadsheet you created in Chapter 4. (*Note:* If you didn't do the Sales Proj. exercise in Chapter 4, you may want to take a few moments and do it now.)

Using Spreadsheet Data with Business Graphics

Before you start, you should know that your computer system must have two disk drives in order to do this exercise. You'll also need a copy of Business Graphics if you actually want to perform the steps (recommended!) instead of just reading them.

Boot up AppleWorks, add "Sales Proj." to your Desktop, and look at it (Figure 6-12). I have made one small change in the spreadsheet. I've used only the first three letters of the names of the months. I've done this because there wouldn't be room on the horizontal axis of the graph for the complete names of all 12 months.

Suppose you wanted to plot a bar graph of "Projected Sales" versus "Months." In the spreadsheet, the names of the months (which would go

FIGURE 6—12

```
File: Sales Proj.              REVIEW/ADD/CHANGE              Escape: Main Menu
========A========B========C========D========E========F========G========H=====
  1|          Hot & Cold Inc.
  2|
  3|Annual Sales Forecast =    $150,000
  4|
  5|
  6|       Jan Sales =  $14,250
  7|       Feb Sales =  $12,750
  8|       Mar Sales =   $7,500
  9|       Apr Sales =   $8,250
 10|       May Sales =   $9,750          Net Present Value $145,013
 11|       Jun Sales =  $15,000
 12|       Jul Sales =  $17,250
 13|       Aug Sales =  $12,000
 14|       Sep Sales =   $9,000
 15|       Oct Sales =  $12,750
 16|       Nov Sales =  $15,750
 17|       Dec Sales =  $15,750
 18|
--------------------------------------------------------------------------------
A1
Type entry or use @ commands                                        @=? for Help
```

on the horizontal axis of your graph-to-be) are located in cells A6 through A17, while values for "Projected Sales" (vertical axis) are in cells C6 through C17. Remember these data locations. You're going to be asked for them when you load the DIF file into Business Graphics.

To print the spreadsheet as a DIF file, type **-P** and press RETURN to select printing All of it. Now choose the option to print the spreadsheet to **A DIF (TM) file on disk** (Figure 6-13). Press RETURN again to print the DIF file in Rows order, and when you're prompted for a Pathname for your DIF file, type **/DATA/BG.DIF**. (*Note:* I'm assuming that you have your AppleWorks data disk, which you formatted with the volume name, "DATA," in your disk drive.)

FIGURE 6—13

```
File: Sales Proj.                    PRINT                    Escape: Erase entry
================================================================================

                    The information that you identified
                    is 63 characters wide.

                    The Printer Options values allow
                    80 characters per line.


                    Where do you want to print the report?

                    1.  My Printer
                    2.  The clipboard (for the Word Processor)
                    3.  A text (ASCII) file on disk
                    4.  A DIF (TM) file on disk



--------------------------------------------------------------------------------

Type number, or use arrows, then press Return  4                    55K Avail.
```

Once the DIF file has been printed to your data disk, you'll have to convert it to DOS 3.3 format. (See the section at the beginning of this chapter for step-by-step instructions on how to do this.) After you have transferred it to your "DOS 3.3 Files" disk, you're ready to read the file into Business Graphics.

Place the Business Graphics Master disk in drive 1 (the built-in drive on a //c) and the Business Graphics Data disk in drive 2. Turn on or reboot your system. At the first prompt, type **INTERCHANGE** and press RETURN. After a few seconds your screen will look like the first 8 lines of Figure 6-14. Business Graphics will read in sets of data from several different sources and formats. The one you want is DIF, so type **DIF** and press RETURN.

FIGURE 6—14

```
TYPE  CTRL-C  TO RESTART INTERCHANGE

ENTER
  TEXT       - TEXT FILE (BASIC/PASCAL)
  VISICALC   - VISICALC PRINT FILE
  DIF        - DIF FILE
  APPLEPLOT  - APPLEPLOT FILE
  END        - WHEN DONE

FILE FORMAT? DIF

ENTER
  DOS3.2.1 - DOS3.2.1 DISK
  DOS3.3   - DOS3.3 DISK
  PASCAL   - PASCAL/FORTRAN DISK

DISK FORMAT? DOS3.3

ENTER
  4  - DISK IN SLOT 6 DRIVE 1
  5  - DISK IN SLOT 6 DRIVE 2
  9  - DISK IN SLOT 4 DRIVE 1
  10 - DISK IN SLOT 4 DRIVE 2
  11 - DISK IN SLOT 5 DRIVE 1
  12 - DISK IN SLOT 5 DRIVE 2

DISK UNIT TO READ FROM? 5

FILE TO READ FROM? BG.DIF

STORED BY ROW OR COLUMN (DEFAULT=ROW)?
```

The next question you'll be asked is to specify the Disk format (operating system) of the data disk that contains your DIF file. Originally, the file was on a ProDOS disk (not one of the choices), but you converted it to a DOS 3.3 disk. So, type **DOS3.3**.

Business Graphics then asks you for the location of your DOS 3.3 disk. Remove the Business Graphics Data disk from drive 2 (the external drive, if you have a //c) and insert the DOS 3.3 disk that has the converted DIF file. Business Graphics refers to disk drives by number (4, 5, etc.) because it's written in Pascal (not that it matters much, one way or the other). What I have been calling *drive 2* (or the external drive), Business Graphics calls *disk unit 5*. Type **5** and press RETURN.

Now you'll type in the name of the DIF file: **BG.DIF**. When you're asked how the data were stored (Row or Column), just press RETURN to indicate Row.

Next, the program will ask you some questions about the data that are going to be used for the horizontal axis of your graph. First, the title. The title is optional, but since you know the data are the months of the year, let's call the title "MONTHS." Next, you're asked if the data are label data (as opposed to value data). Type **YES**. Now you have to say where the set of data began and ended in your original spreadsheet. Remember? The months began in cell A6 and ended in cell A17. Type **A6** for the "FROM" coordinate; type **A17** for the "TO" coordinate.

Now you'll do the same thing for the data that will be plotted on the vertical axis. Type **SALES** for the title. Type **NO** in response to "LABELS (YES OR NO)?" because the data for sales consist of values. This set of data extends "FROM" C6, "TO" C17 (Figure 6-15).

After you enter the last piece of information, the C17 coordinate, you'll see a message that says "WORKING...." Business Graphics will take about a minute or so to process the data from your DIF file into a form it can use. When it's finished, you'll be asked if you want to see a list of the data points created from your DIF file. Type **YES**, and your screen should look like Figure 6-16.

FIGURE 6—15

```
HORIZONTAL AXIS:

  TITLE? MONTHS

  LABELS (YES OR NO)? YES

  FROM VISICALC COORDINATE? A6

  TO VISICALC COORDINATE? A17

VERTICAL AXIS:

  TITLE? SALES

  LABELS (YES OR NO)? NO

  FROM VISICALC COORDINATE? C6

  TO VISICALC COORDINATE? C17
```

FIGURE 6—16

```
MONTHS          SALES

Jan             14250
Feb             12750
Mar             7500
Apr             8250
May             9750
Jun             15000
Jul             17250
Aug             12000
Sep             9000
Oct             12750
Nov             15750
Dec             15750

FILE TO WRITE TO? #5:BGSALES
```

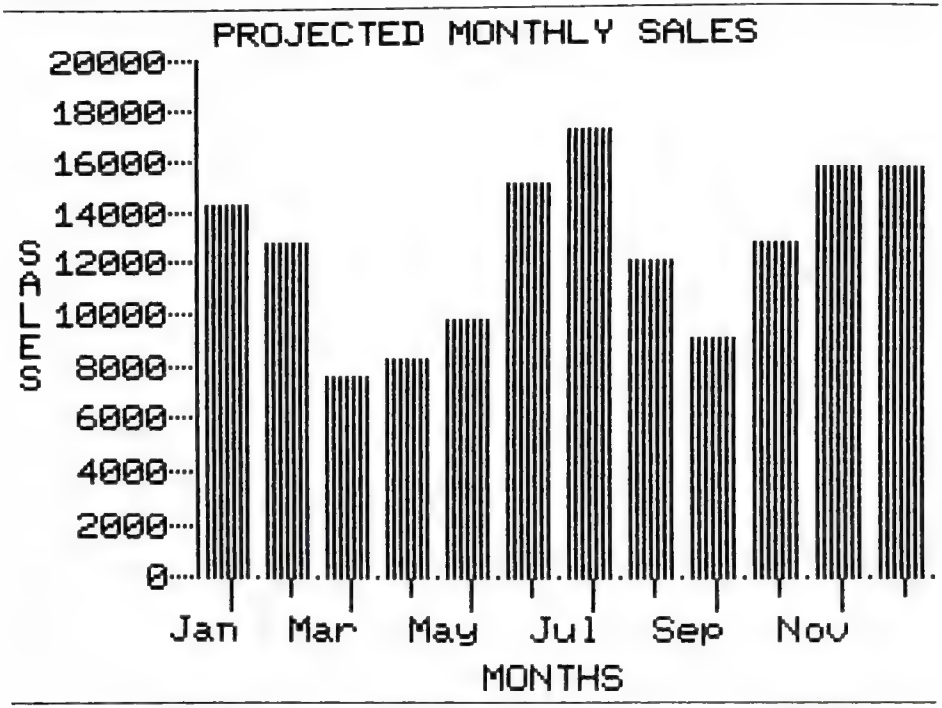
Because this Interchange program is really an auxiliary function of Business Graphics, you have to save these points onto a Business Graphics data disk so you can use them later, when you return to the main portion of the program. Remove your DOS 3.3 disk from drive 2 and insert the Business Graphics Data disk. At the bottom of the list of "MONTHS/SALES" points, you'll be prompted for a name for these data. Type **#5:BGSALES**, and the data file will be saved onto the Business Graphics data disk. (*Note:* You could have used any data disk formatted by Business Graphics. It has its own format utility.)

After a few seconds, you'll see the first Interchange screen again (Figure 6-14). Type **END**, and you'll return to the main part of the Business Graphics program. You can now use the data file, "BGSALES," just as you would any Business Graphics data file. Figure 6-17 shows a typical bar graph drawn from the data.

USING SPREADSHEET DATA WITH THE GRAPHICS DEPARTMENT

The Graphics Department program requires only one disk drive. You'll start the process of using data from the Sales Proj. spreadsheet the same way, by loading the spreadsheet into AppleWorks. Notice that the information you want to plot lies in columns A through C and in rows 6 through 17 (Figure 6-12). You're going to place this block of data in its own DIF file.

FIGURE 6—17



Move your cursor to cell A6 and type ⌘-**P**. Now type **B** for Block and use the arrow keys to highlight columns A through C and rows 6 through 17. Press RETURN when you have all the cells in the block highlighted. Print the report to "A DIF (TM) file on disk." Let's call this file "DIF1," so when you're prompted for a pathname for the file, type **/DATA/DIF1** and press RETURN. The highlighed section of your AppleWorks spreadsheet is now in a DIF file on your data disk.

Because the Graphics Department is a DOS 3.3 program, follow the instructions in the beginning of this chapter and transfer the DIF file to a DOS 3.3 disk.

Boot up the Graphics Department "Charting Kit" disk and select option 9 from the main menu, **DIF file conversion**. This option shows you a blank spreadsheet (similar to VisiCalc) and accepts four commands: Clear, Load, Quit, and Save. To use any of these commands you must first type a slash symbol ("/"). Type /**L** and the program will ask you for the number (1 or 2) of the disk drive that has your data disk. (If you have a single drive system, you should put the DIF1 file on the

"Charting Kit" disk to avoid having to swap disks.) Type **1** or **2** and don't press RETURN. You are shown a list of the files on the data disk with letters (A, B, C, etc.) to the left of the file name. For example:

T [A] DIF1

Ignore the first letter, "T," and type the letter (be sure it's a capital letter) that's in brackets in front of the file named DIF1 ("A" in the example above). You are then asked, "Use DIF (Y/N)." Type **Y** for yes. Now the program wants to know whether to use row or column order to read your DIF file. Type **R** for row. Lastly, you're asked to indicate in which cell on the blank spreadsheet you want the DIF file to begin. Type **A** for the column, press RETURN, type **1** for the row, and press RETURN again. Your DIF file will be read in and your screen will look like Figure 6-18.

Now you want to save the data in a format the Graphics Department can use. Type **/S** and the program will ask you whether your data are arranged in columns or rows. In your file they are arranged in

FIGURE 6—18

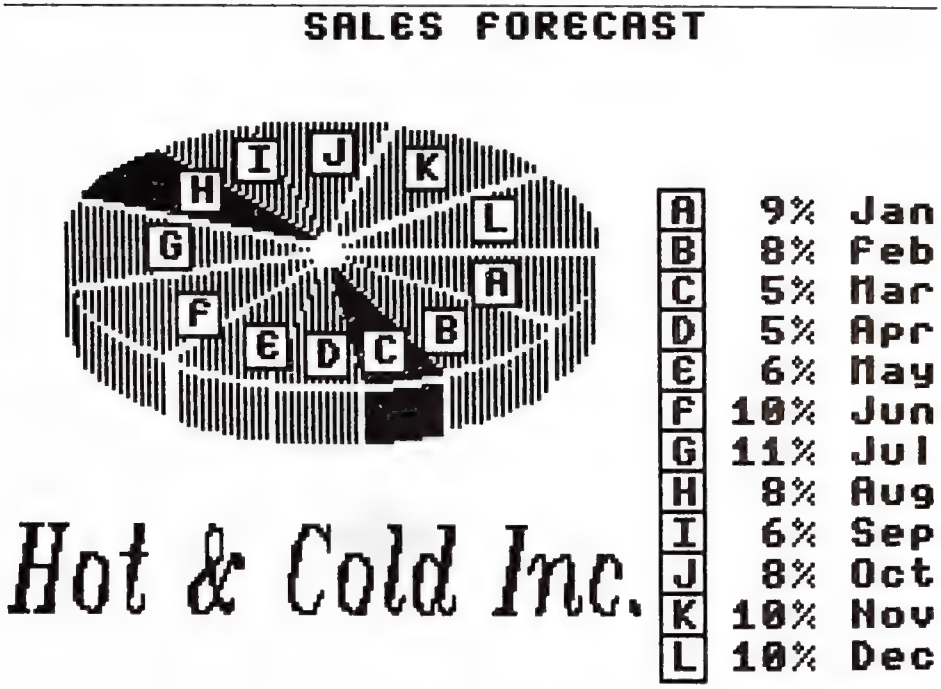
```
SHEET LIMITS    A1 TO  C12 IN MEMORY    D-

     A          B          C          D
 1Jan        Sales =      14250
 2Feb        Sales =      12750
 3Mar        Sales =       7500
 4Apr        Sales =       8250
 5May        Sales =       9750
 6Jun        Sales =      15000
 7Jul        Sales =      17250
 8Aug        Sales =      12000
 9Sep        Sales =       9000
10Oct        Sales =      12750
11Nov        Sales =      15750
12Dec        Sales =      15750
13
14
15
16
17
18
19
20
```

columns, so type **C**. The program wants to know which column holds the data for the vertical (V) axis. These data are in column C, so type **C** and press RETURN. Similarly, the horizontal (H) axis data are in column A, so type **A** and press RETURN. You're asked which drive your data disk is in (1 or 2). Type **1** or **2**. Then type **Z** to indicate that this is a new file and press RETURN. This completes the conversion process.

Rather than plot another bar graph, I used some of the special features of the Graphics Department to create a three-dimensional pie chart. Figure 6-19 shows the result.

FIGURE 6—19



Data Communications: Access //

Access // is a data communications program written specifically for the Apple //e and //c computers. It's a ProDOS-based program, which means that you won't have to convert your AppleWorks files in order to use them with Access //.

You might buy a program like Access // to make it easier for you to communicate with other computers, usually over the telephone. You

might use your Apple to tie into large data bases available from Dow Jones, CompuServe, The Source, and others. Another increasingly important use is electronic mail. Here, you can send a message to a specific person using a modem (a piece of equipment that lets your computer send data over the phone) and phone lines and have it held electronically until your person requests it. Data communications programs allow you to transmit previously prepared documents with a single command. This is where AppleWorks comes in.

You already know how easy it is to edit a document with a word processor. Features such as global search/replacement and cut and paste allow you to create exactly the kind of document you want. These features are rarely, if ever, available from dial-up data bases and electronic mail networks. So, it makes sense to prepare in advance any documents you wish to transmit by computer. Preparing documents in advance can also save you money. Most major data bases charge you a fixed rate per "connect minute." And it takes a lot less time to transmit a document from a text file than it does to type it in by hand while you're connected to the data base.

The process of preparing a document for use by Access // or another data communications program seems straightforward, but, regrettably, it isn't. As noted above, AppleWorks files are not standard text files. Therefore, other programs, like Access //, can't read them.

One obvious solution is to print the AppleWorks file as an ASCII text file, one of the options in the Print Menu. Unfortunately, this procedure has one serious drawback. When AppleWorks prints to an ASCII file on disk, it doesn't issue carriage returns at the end of every line—only at the end of every paragraph. The problem is that most data base and electronic mail systems require carriage returns at the end of each line and usually restrict the length of a line of text to fewer than 80 characters. So, printing your AppleWorks word processing document as an ASCII text file won't work.

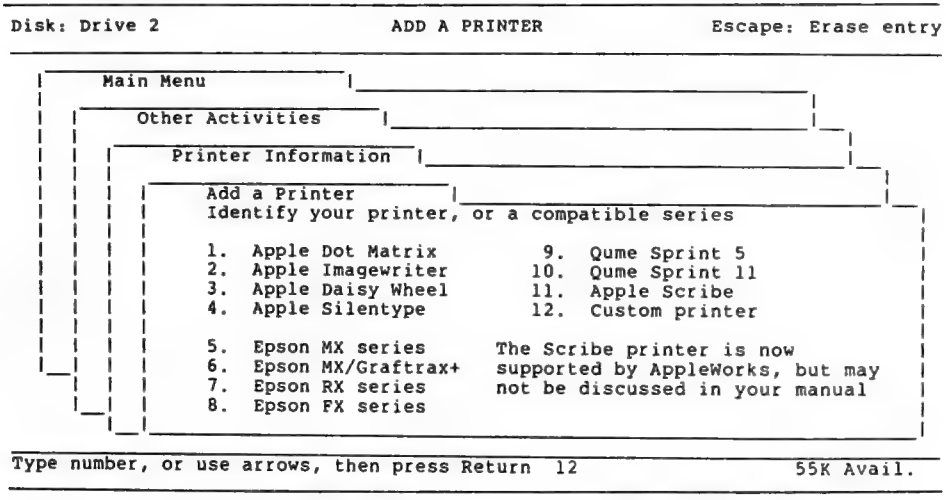
What will work is setting up a special kind of "printer" that prints to your data disk instead of printing on paper. Some of you will be able to add this special printer to your AppleWorks disk. Others will need to make a separate copy of the AppleWorks Program disk. So that everybody is doing the same thing, let's all make a copy of the AppleWorks Program disk to use with this exercise. You can refer to Chapter 1 for instructions on how to copy your AppleWorks disks. After you have made the copy, label the disk "AppleWorks Program Disk - for Data Communications" so that you can distinguish it from the regular AppleWorks Program disk you use for normal printing.

Boot the AppleWorks Startup disk and use the new copy of the Program disk when you are instructed to swap disks. Since this is the

first time you're using this disk, you're going to have to set up this special printer I've been talking about.

Select option 5, **Other Activities**, from the Main Menu and then choose option 7, **Specify information about your printer(s)**, from the Other Activities Menu. You should have only three options showing. If you have any printers showing up as options 4, 5, or 6, use option 3, **Remove a printer**, to delete them. Now select option 2, **Add a printer** (Figure 6-20).

FIGURE 6—20


Disk: Drive 2
ADD A PRINTER
Escape: Erase entry
Main Menu
Other Activities
Printer Information
Add a Printer
Identify your printer, or a compatible series
1. Apple Dot Matrix
2. Apple Imagewriter
3. Apple Daisy Wheel
4. Apple Silentype
5. Epson MX series
6. Epson MX/Graftrax+
7. Epson RX series
8. Epson FX series
9. Qume Sprint 5
10. Qume Sprint 11
11. Apple Scribe
12. Custom printer
The Scribe printer is now supported by AppleWorks, but may not be discussed in your manual
Type number, or use arrows, then press Return 12
55K Avail.

You should now be looking at a list of printers. Select number 12, **Custom printer**. (*Note:* If you are using an older version of AppleWorks, version 1.0 or 1.1, the Custom printer will be choice 11.) AppleWorks will ask you how the printer is to be accessed—in other words, which slot or port is the printer connected to. If you have an Apple //e, respond with choice 7, **Print onto disk or on another Apple** (Figure 6-21). If you have an Apple //c, select the same option by choosing number 3 (Figure 6-22). After the choice has been made, escape back to the Main Menu.

Now you can create documents for Access //. For this exercise, you can load in any word processing document from your AppleWorks data disk. You can set left, right, top, and bottom margins to any values you want. If you don't change the default values, your document will have left and right margins of 1 inch (10 characters), no top margin, and a bottom margin of 2 inches (12 lines). I usually set the left margin to zero, the right margin to 0.5 inches, leave the top margin at zero, and make the

FIGURE 6—21

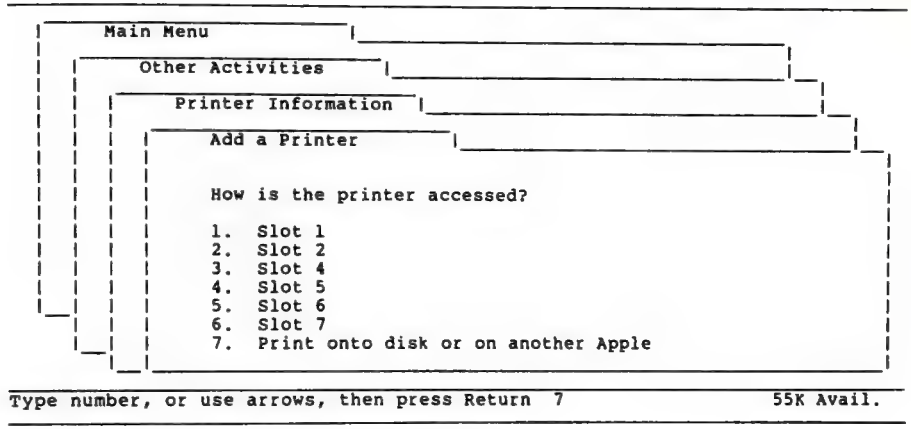
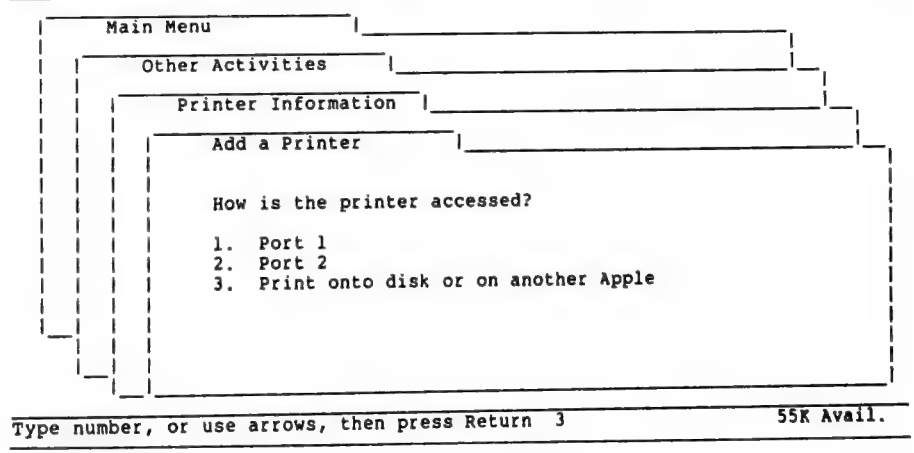


FIGURE 6—22



bottom margin zero, too. Don't change the default character size, 10 characters per inch.

Avoid the use of boldfacing and underlining in documents sent to other computer systems. When AppleWorks saves your document to disk, it translates those caret symbols ("^") to control characters that have special meaning for your printer. These control characters can be very confusing to other computers.

When you're ready to save your document to a file for later use by Access //, type **-P**. Press RETURN to print All of the document. Then select option 1, **Access // (disk)**, from the Print Menu. With your AppleWorks data disk in your disk drive, type **/DATA/EMAIL** for the Pathname, and press RETURN. (*Note:* I'm assuming that "DATA" is the name of your AppleWorks data disk. You can substitute any ProDOS file name in place of "EMAIL.")

If you have a DOS 3.3-based data communications program instead of Access //, refer to the discussion at the beginning of this chapter and convert the file to a DOS 3.3 disk.

Your data communications program will be able to use this file as it would any ASCII text file. With Access //, you would establish communications with the particular electronic mail or data base service you are using. Then, when you're ready to send the document, type **-ESC** to get back to the Main Menu of Access //, and take option 4, **Transmit a File**. When you're asked for the filename, type the same Pathname you used to print the file to disk, "/DATA/EMAIL" in this example. (*Note:* Make sure your "DATA" disk is in one of your disk drives so that Access // can find it.)

Spelling Checker: The Sensible Speller

I had been using AppleWorks for several months before I "discovered" The Sensible Speller. The program was originally released in a DOS 3.3 version in 1983, but a ProDOS version has been available since 1984. The program uses 40-column display, rather than 80-column, so that it can be used by Apple][+ owners as well as //e and //c owners.

The Sensible Speller checks a word processing document against one or more dictionaries and "flags" each word it can't match. The program comes with the 81,000 word Random House dictionary divided into two sections. The main dictionary contains 44,000 of the most often used words. The remaining 37,000 words are in a separate, supplemental dictionary. There are utilities for adding your own words to the Random House dictionary files, or creating your own dictionary from scratch.

Since The Sensible Speller can check documents from other ProDOS-based word processors besides AppleWorks (Apple Writer and Word Juggler), there are utilities for customizing the program for AppleWorks.

The program comes with a 64-page manual and a good index. It is "menu driven" (as is AppleWorks) and is very easy to use. To use it with AppleWorks word processing files requires no additional work at all.

Just save your document in the usual way, quit AppleWorks, and boot up The Sensible Speller.

After you have customized The Sensible Speller to work with AppleWorks files (something you'll have to do only once), you'll see the Main Menu screen (Figure 6-23). Type **C**, Check spelling of a document, and press RETURN. You'll see a message to insert your document disk (your AppleWorks data disk) and press RETURN. At this point, you can remove The Sensible Speller Program disk from drive 1 (the built-in drive on a //c) and insert your data disk.

You will then be shown a list of the files on your data disk. When you see the one you want, type in its name and the file will be examined by The Sensible Speller. The program looks at all the words in your document and tells you both the total number of words and the number of unique words, excluding duplications. (*Note:* You can, at this point, get a list of these unique words and how many times you used each word, either displayed on your screen or printed out on your printer.)

If your computer system has two disk drives, a copy of the main Random House dictionary should be in drive 2 (the external drive on a //c). (*Note:* I strongly recommend that you make copies of both sides of the dictionary disk. Use them, and save the original disk for backup.) If

FIGURE 6—23

```
        The SENSIBLE SPELLER for ProDOS

     Copyright 1984, Sensible Software, Inc.
     ---------------------------------------


         C - Check spelling of a document

         L - List dictionary words

         A - Add words to dictionary

         D - Delete words from dictionary

         Q - Quit speller program


     ---------------------------------------
     Which would you like to do? [ ]
```

your system has only one drive, remove your AppleWorks data disk and insert the dictionary disk.

The program will compare the list of unique words from your document with the dictionary; this will take about a minute. If it can't find one or more words in the dictionary, you can use another dictionary or go on to the correcting section of the program. (*Note:* If you have a single drive system, you'll be instructed to remove the dictionary disk and replace your data disk.)

One at a time, each word that wasn't found in the dictionary will be displayed, highlighted in context, at the top of your screen. You can then choose one of several options for dealing with each instance. If you know the word is spelled correctly, you can either add the word to the dictionary, so that The Sensible Speller will recognize the word the next time it sees it, or you can tell the program to ignore the word entirely. If you see your mistake, you can type in the correct word yourself. If, however, you think the word may be spelled wrong, but you're not sure, you can have The Sensible Speller suggest proper spellings. If you select this option, the program will search the dictionary looking for words close to your spelling and will display on the screen its eight best guesses. If one of these is the word you had in mind, you can make the replacement with a single keystroke.

Anytime you replace a word in your document, The Sensible Speller asks you whether you want to replace all the occurrences of the original word. Normally, you would respond, "Yes."

There are things The Sensible Speller can't do. It can't correct your grammar or your punctuation. And it can't correct the misuse of words. If you write "I have *to* Apples" instead of "I have *two* Apples," the program won't spot the error because "to" is a legitimate word. But for those of us whose spelling accuracy leaves something to be desired, this program is very welcome.

Mail Merge: HabaMerge and MegaWorks

A major feature missing from AppleWorks is the ability to merge a data base file of information with a word processing letter. This feature would most often be used to produce form letters. Imagine that you wanted to send a notice to each of your customers, advising them that your company, Hot & Cold Inc., had opened a second store. You want each letter to be "personalized" with the customer's name and with an address at the top of the letter and an appropriate salutation.

Two programs, HabaMerge and MegaWorks, provide this missing mail merge feature. Both programs were written specifically for use with AppleWorks files, and both contain an extra feature, in addition to mail merge. HabaMerge allows you to print mailing labels two or three

across, for 2-up or 3-up label forms (AppleWorks prints labels in a single column only). MegaWorks provides a spelling checker for AppleWorks word processing files. Both programs will work with single disk drive systems. HabaMerge requires 128K of computer memory.

The two programs differ considerably in the way they merge data from a file into a form letter, so they are treated separately in the following paragraphs. The features they both share are the form letter itself and the list of customers. Both programs have you write the form letter in the word processing section of AppleWorks, and Figure 6-24 shows a typical form letter.

FIGURE 6—24

```
October 12



Dear

For the past four years, we at Hot & Cold Inc. have been
serving our customers from our original location in downtown
Rolling Meadows. Your continued patronage and good
references to your friends and neighbors have resulted in a
very gratifying increase in our business.

I want to thank you personally for thinking of us when you
had a heating or air conditioning problem. I know we have
satisfied you in the past and I pledge that we'll continue
to satisfy you in the future.

In order to better serve our customers, especially those in
nearby Elk Grove, we have opened a second facility there.
Our new store is:

          Hot & Cold Inc.
          326 S. Main Street
          Elk Grove

          (312) 555-7540

We invite you to stop by and see our new store. We're really
proud of it.


Sincerely,

Mike Sloan
President
```

I set up an AppleWorks data base for customers with seven categories (Figure 6-25) and entered three sample records (Figure 6-26). You might wonder why I have separate categories for "Title," "First-Name," and "LastName." The reason is that both mail merge programs insert data in form letters by category. I wanted the salutation of the form letter to be "Dear [Title] [LastName]" (*Example:* Dear Mr. and Mrs. Bockman), so I needed the "Title" and the "LastName" to be separate categories.

FIGURE 6—25

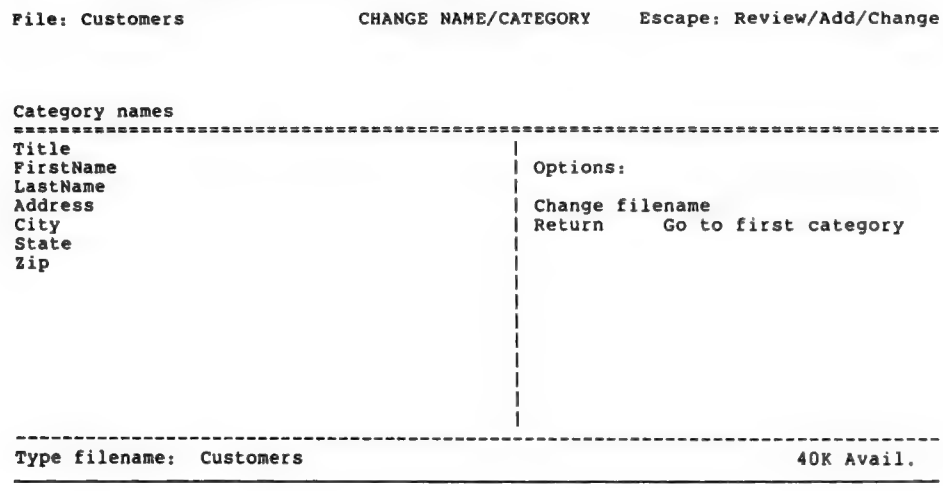
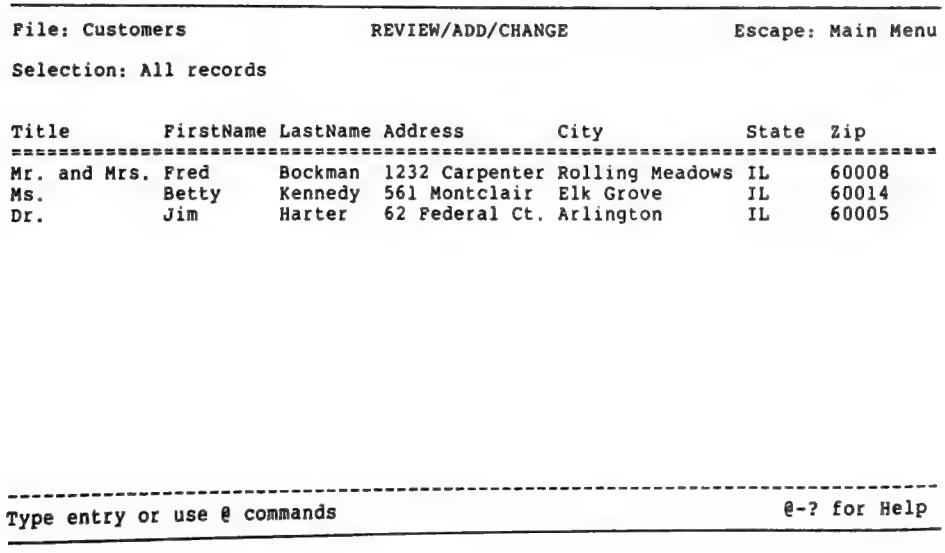


FIGURE 6—26


File: Customers
REVIEW/ADD/CHANGE
Escape: Main Menu
Selection: All records
Title FirstName LastName Address City State Zip
Mr. and Mrs. Fred Bockman 1232 Carpenter Rolling Meadows IL 60008
Ms. Betty Kennedy 561 Montclair Elk Grove IL 60014
Dr. Jim Harter 62 Federal Ct. Arlington IL 60005
Type entry or use @ commands
@-? for Help

MAIL MERGE WITH HABAMERGE

Before you place a copy of the AppleWorks form letter on a data disk for HabaMerge, a couple of things have to be done. First, you have to indicate in the form letter where HabaMerge is to insert the various categories from the data file. Look back at the list of seven categories in Figure 6-25. Imagine that they are numbered, one through seven, in the order that you see them. Now, imagine how you would want the inside address of the form letter to look. On the first line of the inside address you would place data from the "Title," "FirstName," and "LastName" categories, which would be category numbers 1, 2, and 3. On the second line of the inside address you would put data from the "Address" category (number 4). And on the third line, you would put data from the "City," "State," and "Zip" categories (numbers 5, 6, and 7). When you prepare a form letter for HabaMerge, you just type the number of the category preceded by a caret symbol, wherever you want data from that category to be printed. Figure 6-27 shows how the inside address and the salutation would be set up for your sample form letter. (*Note:* The commas in the third line of the inside address and in the salutation are for punctuation only.)

The second change you have to make is to the AppleWorks program itself. You have to set up a special printer to print the form letter to your data disk. To do this, go to the Main Menu of AppleWorks and select option 5, **Other Activities**. From the Other Activities Menu, choose option 7, **Specify information about your printer**. Now you'll add a printer that's exactly the same as one you already have. The only

FIGURE 6—27

```
File: Merge Letter              REVIEW/ADD/CHANGE              Escape: Main Menu
=====|====|====|====|====|====|====|====|====|====|====|====|====|====|====|===
October 12

^1 ^2 ^3
^4
^5, ^6 ^7

Dear ^1 ^3,

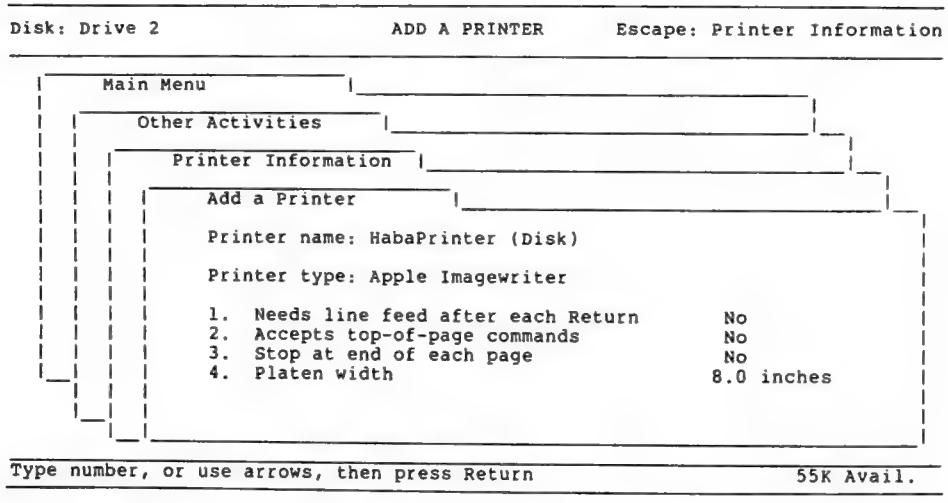
For the past four years, we at Hot & Cold Inc. have been
serving our customers from our original location in downtown
Rolling Meadows. Your continued patronage and good
references to your friends and neighbors have resulted in a
very gratifying increase in our business.

I want to thank you personally for thinking of us when you
had a heating or air conditioning problem. I know we have
satisfied you in the past and I pledge that we'll continue
to satisfy you in the future.

In order to better serve our customers, especially those in
--------------------------------------------------------------------------------
Type entry or use @ commands          Line 7  Column 12        @-? for Help
```

difference is that when AppleWorks asks you which slot or port your printer is connected to, you'll respond with the choice that says **Print onto disk or onto another Apple.** On an Apple][+ or //e, this will be choice 7; on a //c, it'll be choice 3. You can call this special printer, HabaPrinter. Figure 6-28 shows what the Add a Printer screen would look like if your printer was an Imagewriter. (*Note:* If your original printer was set up as a Custom printer, you'll have to make a separate copy of the AppleWorks Program disk for use with HabaMerge. AppleWorks allows only one Custom printer to be chosen out of the three printers you can set up.)

FIGURE 6—28


Disk: Drive 2
ADD A PRINTER
Escape: Printer Information
Main Menu
Other Activities
Printer Information
Add a Printer
Printer name: HabaPrinter (Disk)
Printer type: Apple Imagewriter
1. Needs line feed after each Return No
2. Accepts top-of-page commands No
3. Stop at end of each page No
4. Platen width 8.0 inches
Type number, or use arrows, then press Return
55K Avail.

Now you can print the form letter to your data disk using the HabaPrinter. When you're prompted for a Pathname for the file, type **/DATA/HABALETTER.LTR**. (*Note:* The filename for your form letter *must* have ".LTR" at the end of it or HabaMerge won't recognize it.)

The last thing you have to do, while you're still in AppleWorks, is to print the data base file to your data disk as a Labels style report. This is fairly straightforward.

From the Review/Add/Change screen, you would type **-P** and then choose option 3, **Create a new "labels" format** (Figure 6-29). The only change you have to make in the default settings is to *not* print a report header at the top of each page. To make this change, type **-O** to get to Printer Options, and type **PH** to change the Print Header option from "Yes" to "No" (Figure 6-30).

FIGURE 6—29

```
File: Customers                    REPORT FORMAT              Escape: Report Menu
Report: HabaFormat
Selection: All records


================================================================================
Title
FirstName
LastName
Address
City
State
Zip
------------------------Each record will print  7 lines-----------------------


--------------------------------------------------------------------------------
Use options shown on Help Screen                                    @-? for Help
```

FIGURE 6—30

```
File: Customers                    PRINTER OPTIONS            Escape: Report Format
Report: HabaFormat
================================================================================

-------Left and right margins--------      ------Top and bottom margins-------
PW: Platen Width          8.0 inches       PL: Paper Length         11.0 inches
LM: Left Margin           0.0 inches       TM: Top Margin            0.0 inches
RM: Right Margin          0.0 inches       BM: Bottom Margin         0.0 inches
CI: Chars per Inch        10               LI: Lines per Inch        6

    Line width            8.0 inches           Printing length      11.0 inches
    Char per line (est)   80                   Lines per page       66

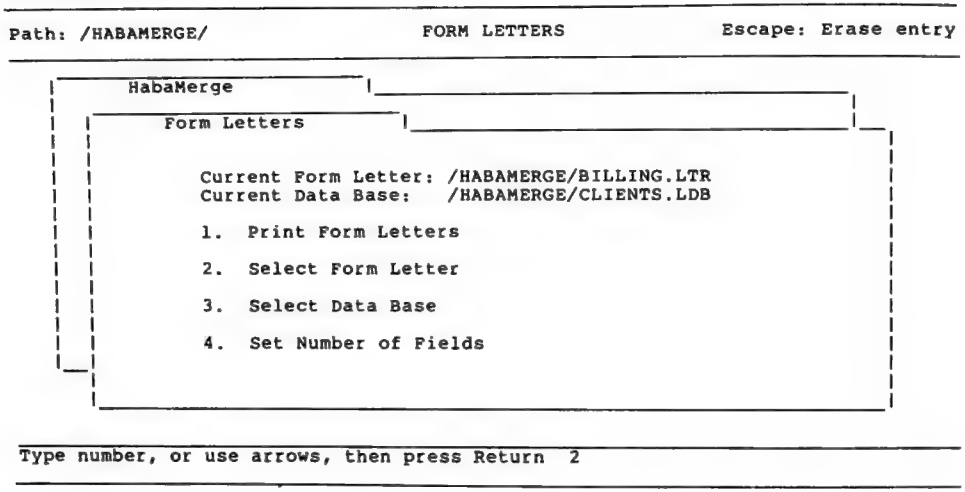
          --------------------Formatting options--------------------
          SC:  Send Special Codes to printer                        No
          PD:  Print a Dash when an entry is blank                  No
          PH:  Print report Header at top of each page              No
          OL:  Omit Line when all entries on line are blank         Yes
          KS:  Keep number of lines the Same within each record     Yes


--------------------------------------------------------------------------------
Type a two letter option code                                       52K Avail.
```

ESC back to the Report format and type ⌘ **-P** to print the file. Select the option to print to **A text (ASCII) file on disk**. You can use the Pathname "/DATA/HABAFILE.LDB." (*Note:* The filename for the data base report must have ".LDB" at the end of it or HabaMerge won't recognize it.)

You now have the two files on your "DATA" disk that HabaMerge will use to produce your form letters. Boot up the HabaMerge program disk and select option 1, **Form Letters** (Figure 6-31).

FIGURE 6—31



Before you can print out the form letters, you have to tell the program which files to use for the form letter and the data base. Choose option 2, **Select Form Letter**. Then select the drive that contains your data disk. The file "HABALETTER.LTR" should be displayed (Figure 6-32). Next, take option 3, **Select Data Base**, from the Form Letters Menu, and choose the data base file "HABAFILE.LDB" (Figure 6-33).

Now you're ready to print out the actual form letters. Choose option 1, **Print Form Letters** (Figure 6-34). This option gives you three choices. You can print the letters to the screen to check that all is well before printing the real letters; you can print out the letters, one at a time (useful if you're using single sheets of paper); or you can print all the form letters without pausing.

MAIL MERGE WITH MEGAWORKS

MegaWorks produces the same final result, but the steps required to accomplish the printing of the form letter are different. Starting with the original form letter, MegaWorks asks you to type in the actual category names. Each category name is placed in the form letter, exactly where you want the data in that category to appear. The category names, themselves, have been changed slightly. Each name is preceded by two dollar symbols, $$ (Figure 6-35). I have also changed the name of the document to "MEGALETTER" and saved it (⩾ -S) to the DATA disk. Later on I can refer to it from MegaWorks as "/DATA/MEGALETTER."

FIGURE 6—32

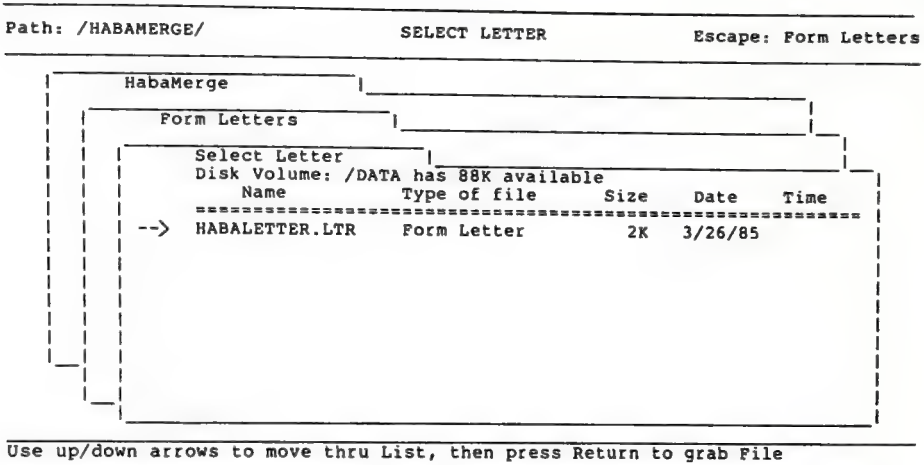
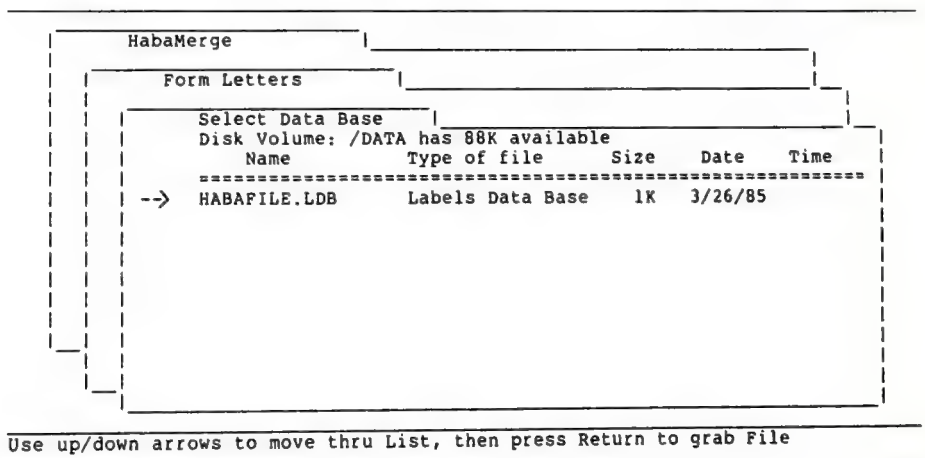


FIGURE 6—33



In the data base, the category names have to be changed the same way (Figure 6-36). Notice also that an eighth category has been added. Its name is a single character, the backslash ("\"). (*Note:* MegaWorks requires this.)

Before the data base file can be printed to disk for MegaWorks, a Labels report format has to be created. Again, the Report Header option is changed in the Printer Options from "Yes" to "No." In the Report

FIGURE 6—34

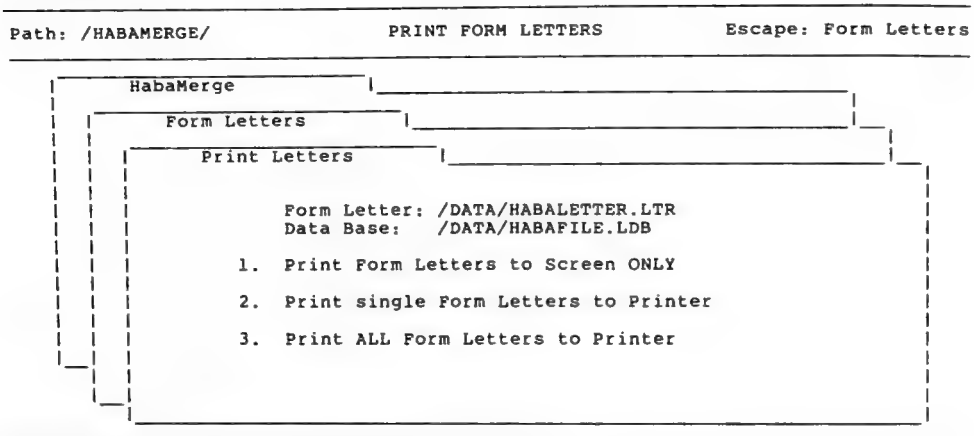
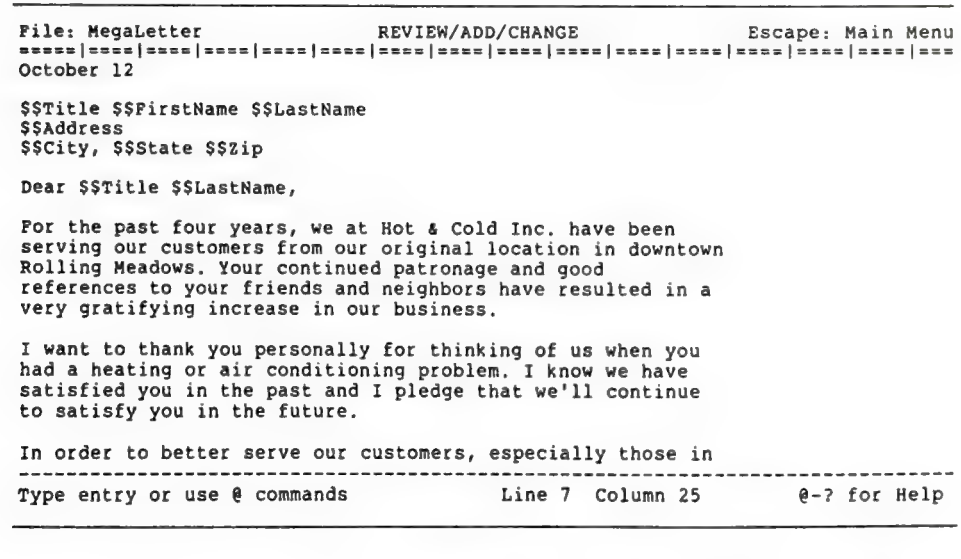

Path: /HABAMERGE/
PRINT FORM LETTERS
Escape: Form Letters
HabaMerge
Form Letters
Print Letters
Form Letter: /DATA/HABALETTER.LTR
Data Base: /DATA/HABAFILE.LDB
1. Print Form Letters to Screen ONLY
2. Print single Form Letters to Printer
3. Print ALL Form Letters to Printer
Type number, or use arrows, then press Return

FIGURE 6—35


File: MegaLetter
REVIEW/ADD/CHANGE
Escape: Main Menu
October 12
$$Title $$FirstName $$LastName
$$Address
$$City, $$State $$Zip
Dear $$Title $$LastName,
For the past four years, we at Hot & Cold Inc. have been serving our customers from our original location in downtown Rolling Meadows. Your continued patronage and good references to your friends and neighbors have resulted in a very gratifying increase in our business.
I want to thank you personally for thinking of us when you had a heating or air conditioning problem. I know we have satisfied you in the past and I pledge that we'll continue to satisfy you in the future.
In order to better serve our customers, especially those in
Type entry or use @ commands
Line 7 Column 25
@-? for Help

format itself, the Show Category Name command, ⌘-V, is used on each category—yes, even the last one (Figure 6-37). The report is then printed, but not to the printer and not to the disk. It's printed to the Clipboard. A new word processing file (called MegaFile in this example) is then created, and the Clipboard containing the data base report is pasted in (Figure 6-38). This is the file that is saved (⌘-S) to your data disk. Later on, it will be referred to as "/DATA/MEGAFILE."

FIGURE 6—36

```
File: Customers                CHANGE NAME/CATEGORY     Escape: Review/Add/Change


Category names
================================================================================
$$Title                                    |
$$FirstName                                | Options:
$$LastName                                 |
$$Address                                  | Change category name
$$City                                     | Up arrow    Go to previous category
$$State                                    | Down arrow  Go to next category
$$Zip                                      | @-I         Insert new category
\                                          | @-D         Delete this category
                                           |
                                           |
                                           |
                                           |
                                           |
                                           |
--------------------------------------------------------------------------------
Type entry or use @ commands                                        33K Avail.
```

FIGURE 6—37

```
File: Customers                REPORT FORMAT            Escape: Report Menu
Report: MegaFormat
Selection: All records


================================================================================
$$Title: Mr. and Mrs.
$$FirstName: Fred
$$LastName: Bockman
$$Address: 1232 Carpenter Lane
$$City: Rolling Meadows
$$State: IL
$$Zip: 60008
\:
----------------------Each record will print  8 lines-----------------------



--------------------------------------------------------------------------------
Use options shown on Help Screen                                    @-? for Help
```

Now it's time to boot up MegaWorks. The main menu lets you choose one of three options: merging documents, checking the spelling of a document, or quitting the program. Choice 1 leads to the Merge Documents section. The first two steps in this procedure let you specify the files for the form letter and the data base list from your data disk. After you select them, the screen looks like Figure 6-39.

FIGURE 6—38

```
File: MegaFile                  REVIEW/ADD/CHANGE              Escape: Main Menu
=====|====|====|====|====|====|====|====|====|====|====|====|====|====|====|===
$$Title: Mr. and Mrs.
$$FirstName: Fred
$$LastName: Bockman
$$Address: 1232 Carpenter Lane
$$City: Rolling Meadows
$$State: IL
$$Zip: 60008
\:
$$Title: Ms.
$$FirstName: Betty
$$LastName: Kennedy
$$Address: 561 Montclair
$$City: Elk Grove
$$State: IL
$$Zip: 60014
\:
$$Title: Dr.
$$FirstName: Jim
$$LastName: Harter
$$Address: 62 Federal Ct.
--------------------------------------------------------------------------------
Type entry or use @ commands              Line 1  Column  1        @-? for Help
```

FIGURE 6—39

```
                                Merge Documents
                                                        ESCAPE: Main Menu
                                Letter document
October 12

$$Title $$FirstName $$LastName
$$Address
$$City, $$State $$Zip

Dear $$Title $$LastName,

                                List document
$$Title: Mr and Mrs.
$$FirstName: Fred
$$LastName: Bockman
$$Address: 1232 Carpenter Lane
$$City: Rolling Meadows
$$State: IL
$$Zip: 60008

                            Selecting list document

Which?  Re-Select letter  ReSelect list  Begin merging
```

When you select **Begin merging**, MegaWorks asks you for a filename for the merged file. This is the major difference between HabaMerge and MegaWorks. HabaMerge actually prints out the letters. MegaWorks creates a file on your data disk that contains all of the merged letters. You then reenter AppleWorks, load in this file, and print it out. Figure 6-40 shows part of this merged file after it has been read back into

FIGURE 6—40

```
File: FORM.LETTERS              REVIEW/ADD/CHANGE              Escape: Main Menu
=====|====|====|====|====|====|====|====|====|====|====|====|====|====|====|===
October 12

Mr. and Mrs. Fred Bockman
1232 Carpenter Lane
Rolling Meadows, IL 60008

Dear Mr. and Mrs. Bockman,

For the past four years, we at Hot & Cold Inc. have been
serving our customers from our original location in downtown
Rolling Meadows. Your continued patronage and good
references to your friends and neighbors have resulted in a
very gratifying increase in our business.

I want to thank you personally for thinking of us when you
had a heating or air conditioning problem. I know we have
satisfied you in the past and I pledge that we'll continue
to satisty you in the future.

In order to better serve our customers, especially those in
--------------------------------------------------------------------------------
Type entry or use @ commands          Line 13  Column  1       @-? for Help
```

AppleWorks. See how the category names in the original form letter have been replaced by actual data.

III. USING APPLEWORKS WITH OTHER HARDWARE

One of the nicest features of any Apple computer is the ability to expand the computer system with additional hardware. This section discusses three pieces of add-on equipment that can improve the efficiency and/or add extra capabilities to AppleWorks.

Hard Disk Drives: Profile

Apple developed the 5-megabyte Profile hard disk drive for use with its Apple /// line of computers. When the Lisa computer was developed, the Profile was the original mass storage device used. As far as Apple // computers were concerned, the Profile couldn't be used. The reason was the operating system, DOS 3.3, which couldn't recognize any disk drive except the standard Apple floppy drive. One of the principal reasons for the development of the ProDOS operating system was to allow Apple // computers to access large-capacity disk drives easily. Once ProDOS was released, Profile interface cards for Apple][+ and //e followed almost immediately.

Recently, a 10-megabyte version of the Profile was introduced. Since AppleWorks was written under ProDOS, it works very well with a Profile.

There are two major reasons for wanting to use a Profile with AppleWorks. The first is the ability to store all your data files in one place. This means no more floppy disks that could get lost or damaged. And no more trying to remember *which* disk a particular file was on. The second reason is that you can put the AppleWorks program itself on the Profile. This action speeds up the operation of the program, and you no longer have to keep the AppleWorks Program disk in drive 1.

There are two ways of using AppleWorks with a Profile. The first is described in Appendix A of the AppleWorks Reference Manual. The second involves the use of a special program called Catalyst. Catalyst is kind of a super menu program. It allows you to place virtually any ProDOS-based program (AppleWorks, The Sensible Speller, Haba-Merge, Apple Writer, Access //, ProDOS Utilities, etc.) on a Profile and then select any of them from its menu. When you're through with a program, quitting returns you to Catalyst's menu.

One of the major advantages of ProDOS is its ability to create subdirectories within a volume. This feature allows you to group together, under one heading, as many related files as you wish. For example, you might have a data disk that contains copies of business letters you have sent during the year. The Volume Name of the data disk might be "LETTERS," and you might set up subdirectories called: JANUARY, FEBRUARY, MARCH, etc. (*Note:* There is a command in both the ProDOS User's Disk and System Utilities that allows you to create subdirectories.) When you want to save a letter you have written in March, you would use the Pathname: "/LETTERS/MARCH/filename."

Subdirectories are convenient when used with floppy disks; they are vital when you use a Profile hard disk. This is because the main (root) directory of *any* ProDOS volume, floppy disk or hard disk, can contain a maximum of only 51 files. If you use a Profile, and you save files indiscriminantly to the Profile root directory, you'll soon see an error message (Directory Full) warning you that you can't save any more files on that volume—even though you may have millions of unused bytes of storage space on the Profile.

There is one caution you should remember if you buy a hard disk drive like the Profile. Back it up! Sooner or later *everything* breaks. When your Profile fails, and you take it in to be repaired, you will probably lose all of the data you had stored on it. Think about that for a moment. Programs can be easily reloaded on your repaired Profile. But

what about your data files? You will probably have many months, perhaps years of data files. Does the thought of having to retype all that data fill you with dread? Good! Then use the Backup // program that comes with your Profile to back up your Profile's data to floppy disks regularly. That way, when you get your repaired Profile back, all you have to do is transfer the data from the floppies back onto your Profile.

While we're on the subject of backing up files, let me suggest that you make extra copies of any file you care about. Copying a file is simple. Just ESC to the main AppleWorks menu and select option 3, **Save Desktop files to disk**. If you have more than one file on your Desktop, you can select your file by pressing the down-arrow key until it is highlighted. Then press RETURN. Place your back up data disk in your disk drive and press RETURN again. (If you have a previous version of your data file on your back up data disk, you'll see a message asking whether to replace the old version with the current one. Just press the "Y" key to indicate "yes.") That's all there is to backing up data files.

It takes little time and no effort to protect yourself from having to spend hours recreating a data file because your dog ate your data disk. "How often should I back up my data files," you ask? The answer is "How much data can you afford to lose?" If you can afford to lose a day's worth of data, back up every day; if you can afford only an hour's loss, back up every hour.

Add-On Memory Cards: RamWorks, MultiRam, and Z-Ram

AppleWorks is a "memory-based" program. What that means is that the particular file you are working on—word processing, data base, or spreadsheet—is kept in your Apple's memory. That's why AppleWorks tells you how much memory remains as you are working. If you have an Apple //e with an Extended 80-Column Text Card, you'll start out with a 55K AppleWorks Desktop. This means that you can't create a file of any type larger than 55K bytes. (*Note:* The advantage of a memory-based program is that operations such as searching and sorting can be done in seconds, rather than in half-hours.)

It may seem to you as if a 55K Desktop is more than you'll ever need. And you may be right. But to give you some idea of the limitations of 55K, if you were creating a customer list in the data base, you would have room for about 750 customers before you ran out of memory. Owning a Profile doesn't help. The problem is your Apple's memory, or rather the lack of it.

ADD-ON MEMORY FOR THE APPLE][+

Back in Chapter 1, I talked about using AppleWorks with an Apple][+. Two major obstacles had to be overcome. One was the display, which had to be 80 columns; the other was the keyboard of the][+, which doesn't have certain keys that AppleWorks uses. Two companies, Videx and Checkmate Technology, make 80-column boards for the][+. They also provide a disk that modifies AppleWorks for][+ usage. The disk not only tells AppleWorks that it's okay to run on an Apple][+ (normally, AppleWorks would display a message saying that it could only run on an Apple //e or //c), but the disk also tells AppleWorks that special keys such as OPEN-APPLE and DELETE will be represented by combinations of keys on the][+ keyboard.

The only extra requirement, beyond the purchase of one of the 80-column boards, is the addition of 16K memory board to bring the RAM of your][+ to a total of 64K. Once you've done this you'll have the same 10K AppleWorks Desktop that Apple //e owners have. And you can increase the memory capacity of your][+, too. One of the 80-column board manufacturers, Videx, allows you to add extra memory to your][+. The memory board they recommend is the S'Card from Legend Industries. While you can buy memory boards in sizes ranging up to a megabyte (1 million bytes of RAM), the disk that Videx supplies modifies AppleWorks to recognize a maximum of 128K. This would give you the standard 55K Desktop. Legend Industries, however, supplies their own AppleWorks modification disk that allows up to a 1 megabyte Desktop.

By the way, the engineers at Checkmate Technology assured me that they are bringing out a new version of their AppleWorks modification disk that will also allow you to use additional memory with their 80-column card as well. What all three companies are doing, of course, is trying to make your][+ emulate an Apple //e. And because there are so many Apple][+ owners, you can expect to see a lot of activity in this area of //e emulation.

ADD-ON MEMORY FOR THE APPLE //e

Two companies, Applied Engineering and Checkmate Technology, Inc., currently market memory expansion boards for the Apple //e. Both boards, RamWorks from Applied Engineering and MultiRam //e from Checkmate Technology, Inc., are combination memory and 80-column boards and replace Apple's Extended 80-Column Text Card.

RamWorks is available in five memory sizes: 64K, 128K, 256K, 512K, and 1Meg. MultiRam //e can be configured in any one of 18 memory amounts, from 64K to 1.5Meg in multiples of 64K. The RAM on

either card combines with the 64K of RAM on your //e's motherboard. But AppleWorks can use only part of the total available memory for its Desktop. For example, a 256K board plus the 64K of RAM on the motherboard would give you a total of 320K. But your AppleWorks Desktop would be only 183K, which is still a lot better than 55K.

Enlarging the desktop lets you create bigger files. The maximum number of records in a data base file is also increased from 1,350 to around 5,000. However, there are some limitations that are not changed. One of these is the size of the Clipboard. The maximum number of lines the Clipboard will hold is 255, independent of the size of the Desktop.

Both companies provide disks that modify AppleWorks so that it knows that additional memory is available. These disks make other modifications in AppleWorks as well. One of these changes the way AppleWorks resaves files. When you save a file that already exists on your data disk, AppleWorks first saves the current version of the file onto the disk with a temporary file name. If it was successful saving the file (if there was enough room on the disk), it would then delete the old version of the file from the disk and rename the new file with the old file name.

A newly formatted data disk can hold about 135K. If you expand your AppleWorks Desktop, you could easily create a file larger than 70K. The first time you saved the file there would be no problem. But the second time, there wouldn't be enough room on the disk for the temporary new file to be saved. You would have to remove the old version of the file from your data disk, before you could save the new version.

The modification disk changes the AppleWorks Save procedure so that if there were an older version of the file on your data disk, it would be deleted before the current version was saved. You might ask what would happen if your AppleWorks Desktop were large enough to let you create a file bigger than 135K, the maximum free space on a disk. One answer is that you would have to use a larger disk drive, such as the Profile mentioned above. But both companies' modification disks solve the problem by allowing AppleWorks to save large files onto two or more data disks (to a maximum of 9 data disks). The program prompts you to insert additional disks.

ADD-ON MEMORY FOR THE APPLE //c

Applied Engineering also makes a memory expansion board (called Z-RAM) for the Apple //c. While the][+ and the //e have slots on their motherboards that accept various kinds of add-on boards (memory boards, 80-column cards, printer interface cards, etc.), the //c was

designed without any slots. This fact has hampered the development of third-party accessories (such as memory expansion boards) for the //c. Applied Engineering solved the problem by developing a memory expansion board that mounts piggyback fashion on top of the //c's motherboard. Z-RAM comes in two memory sizes: 256K and 512K.

As an additional feature, Z-RAM gives your //c the ability to run software (such as Wordstar and dBASE II) written under the CP/M operating system. (Ordinarily, your //c wouldn't be able to run CP/M software. Separate CP/M boards *are* available for the][+ and //e.)

The above discussion on using AppleWorks with Apple //e memory expansion boards applies to Z-RAM as well. For example, using the 512K Z-RAM with your 128K Apple //c (a total of 640K) gives you a 413K AppleWorks Desktop.

If your //c system has only one disk drive, you'll find another of Z-RAM's features especially welcome. You've probably noticed as you've been using AppleWorks that the program accesses the disk drive containing the AppleWorks program disk fairly often. Because the complete AppleWorks program is so large, only part of the program is loaded into your Apple at any one time. If you request a feature of the program that isn't currently residing in your computer, the program goes out to the disk and loads the section that contains the feature you requested. That's why you have to leave the program disk in your disk drive all the time. If you have a single disk drive system, you have to swap your data and program disks every time you want to load or save a document.

Z-RAM and the two memory boards for the Apple //e mentioned above allow you to load the entire AppleWorks program into your Apple's expanded memory. (*Note:* This does not reduce the size of your Desktop. The program loads into the unused portion of RAM.) You can then insert your data disk in your disk drive and leave it there—no more swapping.

Clock/Calendar Cards: ThunderClock and Timemaster

Every time you boot up AppleWorks, it asks you to type in the current date. The reason for this has to do with ProDOS. When you save a file to disk, ProDOS not only records the file's name, but (if ProDOS knows it) the date and time as well. This "date stamping" of files can be very useful. If you list the directory of your data disk, you can see when a particular file was last updated.

Clock/Calendar Cards automatically supply the current date and time to ProDOS, as well as to any program designed to look for date and time information (yes, AppleWorks will look for this). The cards have batteries that will keep the clock running, even when your Apple is turned off. There are at least two Clock/Calendar Cards that work properly with ProDOS: ThunderClock from ThunderWare, and Timemaster from Applied Engineering (the makers of RamWorks).

Final Comments

I thought you might be interested in knowing which computer system and software I used to write this book. (You didn't think I used a typewriter, did you?) The book was entirely written and edited on an Apple //e with the following peripherals:

Monitor //
2 disk drives
5Meg Profile
128K RamWorks card
Imagewriter printer and Super Serial Card
ThunderClock

The software was, what else, AppleWorks, running on the Profile, under Catalyst. The Sensible Speller was used to catch my all-too-frequent spelling errors.

APPENDIX A

MANUFACTURERS' LIST

Company	Product	Description
Apple Computer, Inc. 20525 Mariani Ave. Cupertino, CA 95014 408/996-1010	Apple //e, //c	Computers
	Profile	Hard disk drive
	Imagewriter	Printer
	Color 100	RGB color monitor
	AppleWorks	Integrated Software
	Apple Writer	Word Processing
	Business Graphics	Graph Plotter
	Access //	Data Communications
	Quick File	Data Base
Applied Engineering P.O. Box 798 Carrollton, TX 75006 214/241-6060	RamWorks	//e memory exp.
	Timemaster	Clock card
	Z-RAM	//c memory exp.
Checkmate Technology, Inc. 509 South Rockford Dr. Tempe, AZ 85281 602/966-5802	MultiRam //e	//e memory exp.
	Multiview 80/160	][+, //e 80-col. card
Discwasher 1407 N Providence Rd., P.O. 6021 Columbia, MO 65205 314/449-0941	Serial-to-Parallel	//c printer I/F
Haba Systems, Inc. 15154 Stagg St. Van Nuys, CA 91405 818/901-8828	HabaMerge	Mail merge Software
Legend Industries 2220 Scott Lake Road Pontiac, MI 48054 303/674-0953	S'Card	Memory card for the][+
MegaHaus 5703 Oberlin Dr. San Diego, CA 92121 619/450-1230	MegaWorks	Mail merge Software

Sensible Software 210 S. Woodwork, Suite 229 Birmingham, MI 48011 313/258-5566	The Sensible Speller The Graphics Department	Spelling Checker Graph Plotter
Thunderware, Inc. 19G Orinda Way Orinda, CA 94563 415/254-6581	ThunderClock	Clock card
Video 7, Inc. 12340 Saratoga/Sunnyvale Rd. Sunnyvale, CA 95070 800/238-0101	RGB adapter	//c RGB adapter
Videx, Inc. 897 NW Grant Avenue Corvallis, OR 97330 503/758-0521	VideoTerm UltraTerm	][+ 80-column card][+, //e 80/160-column card

APPENDIX B

CONFIGURING APPLEWORKS FOR A CUSTOM PRINTER

The information in this appendix will help you to configure your copy of AppleWorks for your custom printer. Please read these instructions first. Then find the Printer Codes Sheet for your printer and enter the codes into AppleWorks as described in the following example. (*Note:* If your printer isn't listed here, I apologize. I found as many as I could. If you can't figure out the proper control codes from your printer's manual, try your Apple dealer, who can either figure it out or call Apple Technical Support for help.)

Let's suppose your printer is the Okidata Microline 92. Find the Printer Codes Sheet for this printer and refer to it as you go through the example. At this point you should have selected the **Custom printer** from the Add a Printer Menu, named it, and selected the slot or port to which it is connected. Your screen should be showing a list of options, the last of which is **Printer codes** (Figure B-1). If you had made any choice other than **Custom printer**, you wouldn't see the **Printer codes** option because AppleWorks knows the printer codes for all the printers in the list. It's because you have a custom printer that you have to tell AppleWorks how to command your printer to do things such as underline and boldface.

Select the **Printer codes** option and you'll see four options for printer commands (Figure B-2). (*Note:* If you have an Apple //c, you will see a fifth option, **Serial Interface settings**, which lets you configure the Apple //c serial port for your printer. The default settings are 9600 baud, 8 data bits, 1 stop bit, no parity. The configuration switches on

FIGURE B—1

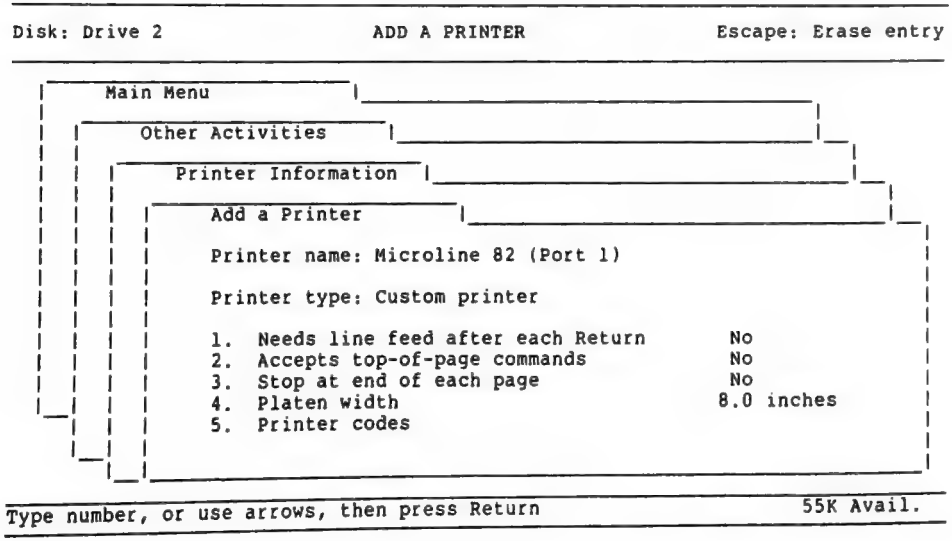
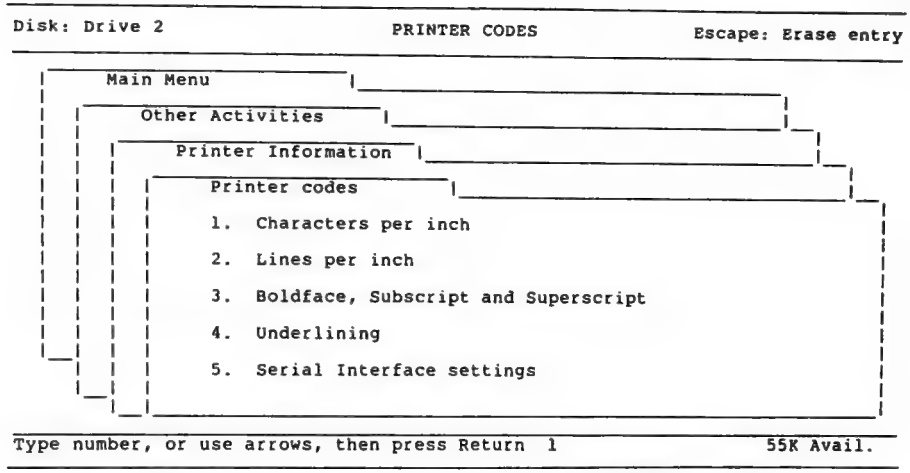

Disk: Drive 2
ADD A PRINTER
Escape: Erase entry
Main Menu
Other Activities
Printer Information
Add a Printer
Printer name: Microline 82 (Port 1)
Printer type: Custom printer
1. Needs line feed after each Return No
2. Accepts top-of-page commands No
3. Stop at end of each page No
4. Platen width 8.0 inches
5. Printer codes
Type number, or use arrows, then press Return
55K Avail.

FIGURE B—2



your printer should be set to match these values.) You're going to "fill in the blanks" in the first four options with the information from your Printer Code Sheet. For this exercise, though, I'll use the data from the Microline 92's sheet.

The first type of printer command contains the codes needed to tell your printer how to select the number of characters per inch it prints. Most dot matrix printers offer a variety of print sizes. AppleWorks lets you select a print size in the Printer Options section (the CI command) of any of the three applications, word processing, data base, or spreadsheet.

Take option 1, **Characters per Inch**. At the bottom of your screen (Figure B-3), you will be prompted for the "Number of characters per inch (4-24)" you want to define. The Printer Codes Sheet for the Microline 92 lists commands for six different values of characters per inch. Let's enter the first one, 5 characters per inch. Type **5** and press RETURN. The file folder on your screen is labeled "5 chars per inch" and says, "Current control characters are None" (Figure B-4). You're going to change that. From the Codes Sheet, you see that the command for 5 characters per inch consists of two characters: CONTROL-^ and CONTROL-_. To get the CONTROL-^ character, hold down the CONTROL key while you type the number 6 (you don't have to hold down the SHIFT key). The word "None" is replaced by "CONTROL-^." Type the second character, CONTROL-_, by holding down the CONTROL key while you type a dash, "-" (again, the SHIFT key is

FIGURE B—3

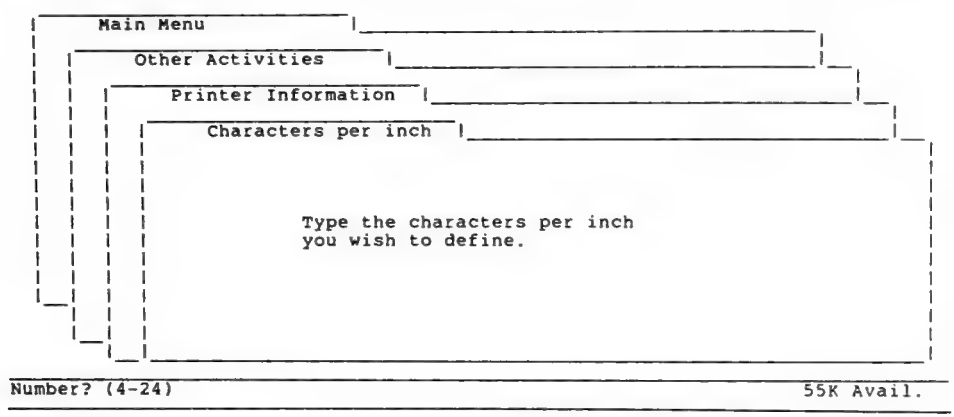
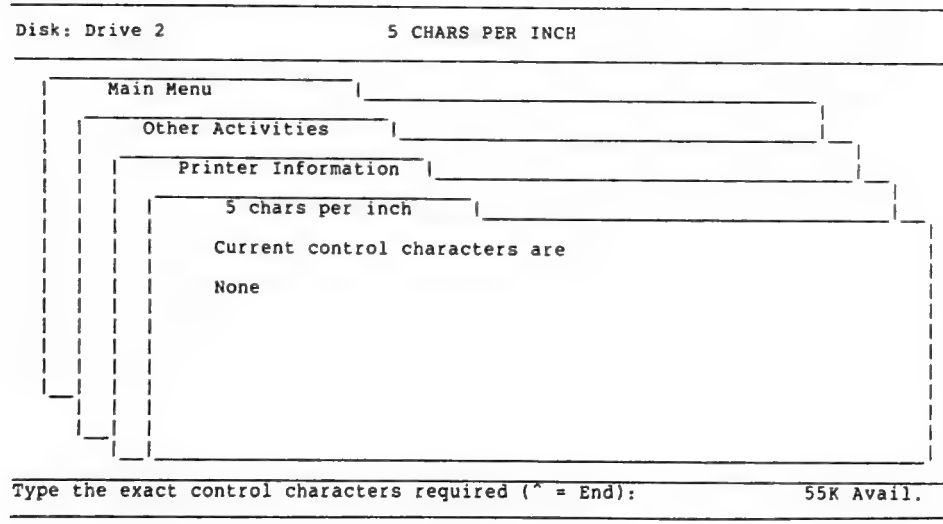
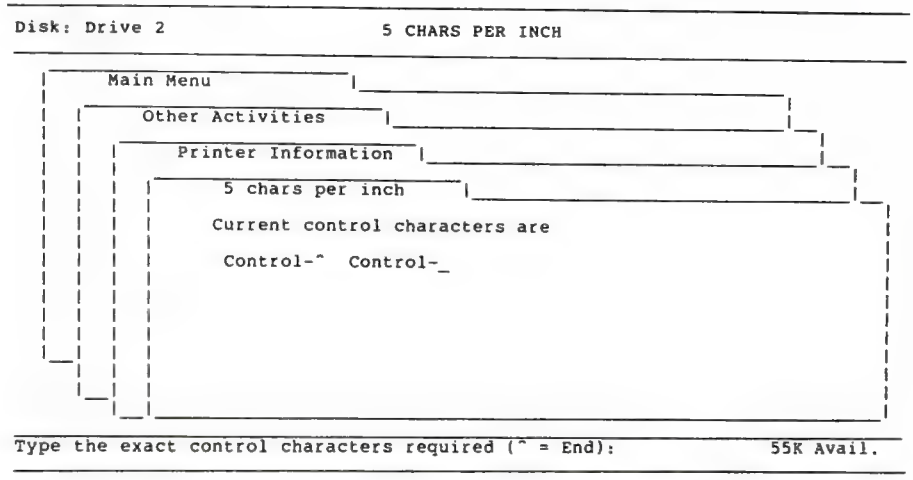


FIGURE B—4



optional). The second control character will appear on your screen (Figure B-5). *Don't press the RETURN key.* You're through entering commands for 5 characters per inch, but pressing RETURN won't get you out of it. Nor will pressing ESC. The only way to terminate entering control characters is to type a ^ (caret) character. (Hold down the SHIFT key while you type a 6.)

FIGURE B—5



After you type the ^ , your screen will again look like Figure B-3. Repeat the above process five more times for 6, 8, 10, 12, and 17 characters per inch. Type in the number of characters per inch, the control characters from the Codes Sheet, and the ^ character to get out. If you make a mistake, type the ^ character to get out, reenter the same value for "Number of characters per inch," type **N** to indicate that the current control characters are wrong, and type in the correct control characters.

When you're finished entering the commands for characters per inch, and you're being asked to type in another value for the Number, press ESC and you'll be back at the Printer Codes screen (Figure B-2).

Take option 2, **Lines per inch** (Figure B-6). Only two values are allowed for vertical spacing, 6 or 8 lines per inch. Choose number 1, **6 lines per inch**. The two characters from the Codes Sheet of the Microline 92 for 6 lines per inch are ESC and 6. ESC represents the Escape character that you enter by pressing the ESC key. The 6 is just a normal 6 (Figure B-7). After you enter the two characters, type a ^ to get out. Then take number 2, **8 lines per inch**, enter ESC and 8, and type ^ to get out. ESC back to the Printer Codes screen.

The third Printer Codes option is **Boldface, Subscript and Superscript**. Take it (Figure B-8). You'll enter the six commands, one at a time. For **Boldface Begin**, enter the 2 characters ESC and T. For **Boldface End**, ESC and I. For **Subscript Begin**, ESC and L. For **Subscript End**, ESC and M. For **Superscript Begin**, ESC and J. And for **Superscript End**, ESC and K. These command characters all come from the Printer Codes Sheet for

FIGURE B—6

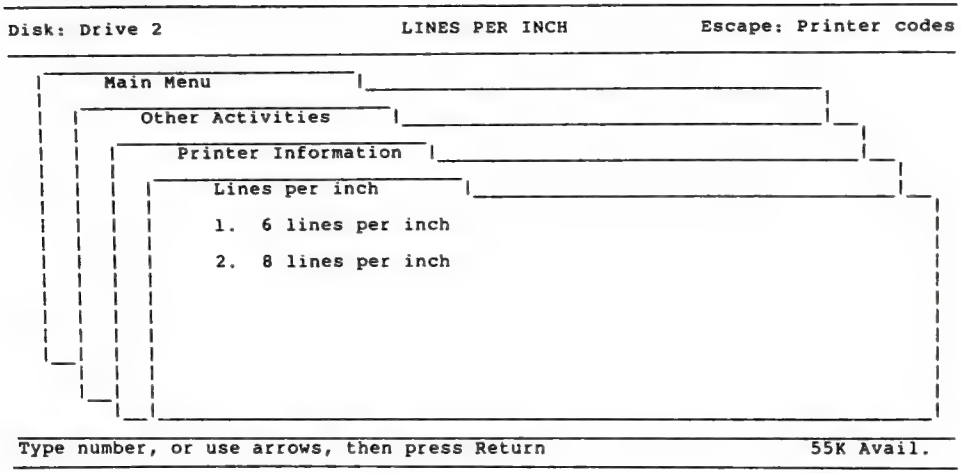
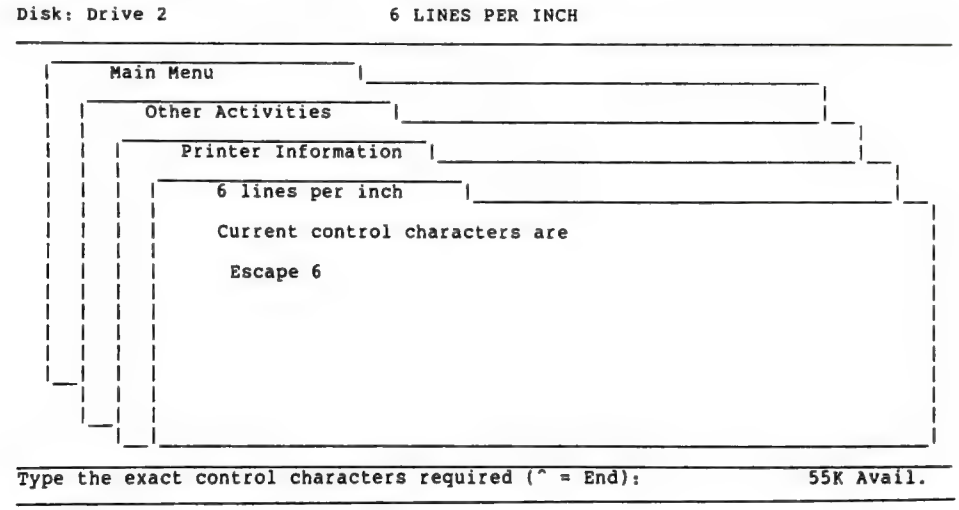


FIGURE B—7



the Microline 92. As in previous examples, after the command characters are entered, type a ^ to get out of the option. When you're through with the last one, **Superscript End**, ESC back to the Printer Codes screen.

The fourth Printer Codes option is for **Underlining**. Select it now (Figure B-9). Some printers can't underline at all. If your printer was

FIGURE B—8

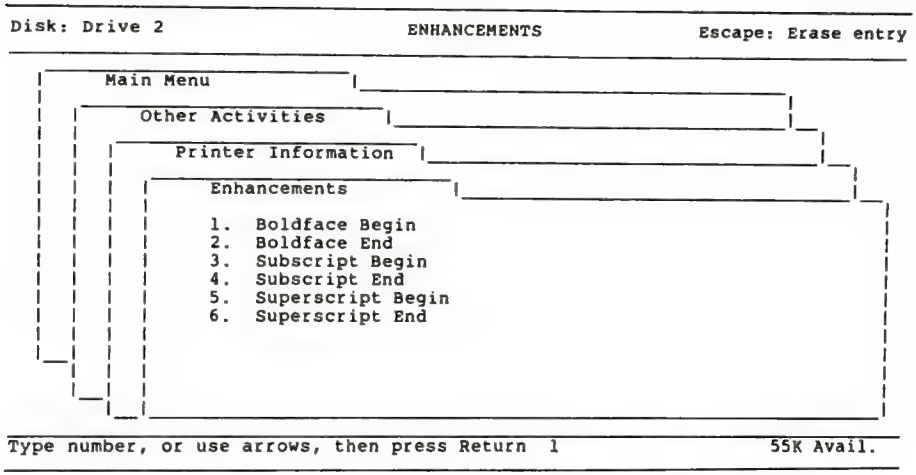
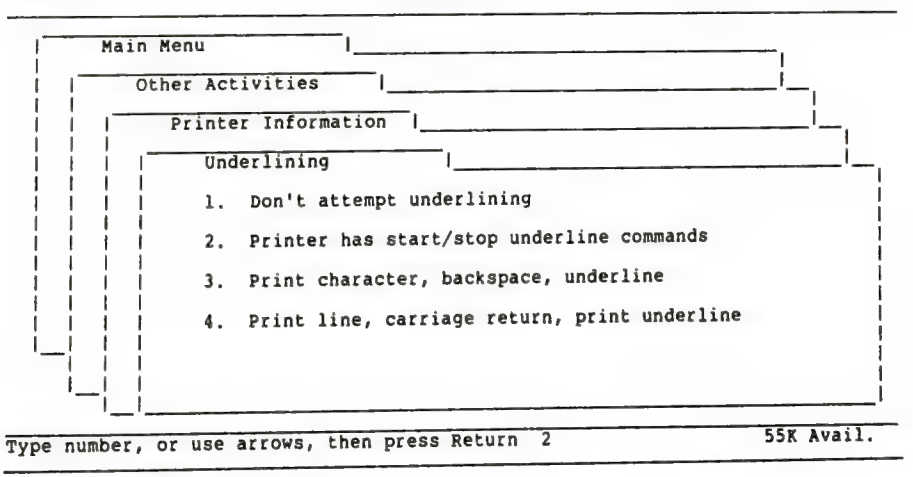


FIGURE B—9



one of these, you would choose option 1, **Don't attempt underlining**. Most printers (such as the Microline 92) have start and stop commands for underlining, so you would choose option 2. You would then select **Underline Begin** and enter ESC and C; then select **Underline End** and enter ESC and D.

Some printers underline by typing a character, backing up a space, and typing an underline character. If your printer underlines this way, you should take option 3 from the Underlining Menu. And some printers print the entire line, then go back and underline. Option 4 is for them.

And that completes the custom printer configuration. I know it sounds complicated, but if you take it one step at a time, you should be able to get through it without problems.

I. PRINTER CODES SHEETS

Manufacturer: Apple Computer **Model: LaserWriter**

Characters per Inch

5 CPI: ESC CONTROL-_ CONTROL-Y
6 CPI: ESC CONTROL-_ CONTROL-U
8 CPI: ESC CONTROL-_ CONTROL-P
10 CPI: ESC CONTROL-_ CONTROL-M
12 CPI: ESC CONTROL-_ CONTROL-K
15 CPI: CONTROL-I CONTROL-A ESC CONTROL-_ CONTROL-I CONTROL-A CONTROL-I

Lines per Inch

6 LPI: CONTROL-I CONTROL-A ESC CONTROL- ^ CONTROL-I CONTROL-A CONTROL-I
8 LPI: ESC CONTROL- ^ CONTROL-G

Boldface, Subscript and Superscript

Boldface Begin: ESC O
Boldface End: ESC &
Subscript Begin: ESC U
Subscript End: ESC D
Superscript Begin: ESC D
Superscript End: ESC U

Underlining

Underline Begin: ESC E
Underline End: ESC R

Manufacturer: Brother **Model: HR-15**

Characters per Inch
- 10 CPI: ESC CONTROL-_ Return
- 12 CPI: ESC CONTROL-_ CONTROL-K
- 15 CPI: CONTROL-I CONTROL-A ESC CONTROL-_ CONTROL-I CONTROL-A CONTROL-I

Lines per Inch
- 6 LPI: CONTROL-I CONTROL-A ESC CONTROL- ^ CONTROL-I CONTROL-A CONTROL-I
- 8 LPI: ESC CONTROL- ^ CONTROL-G

Boldface, Subscript and Superscript
- Boldface Begin: ESC F
- Boldface End: ESC &
- Subscript Begin: ESC U
- Subscript End: ESC D
- Superscript Begin: ESC D
- Superscript End: ESC U

Underlining
- Underline Begin: ESC E
- Underline End: ESC R

Manufacturer: Brother **Model: HR-25, HR-35**

Characters per Inch
- 10 CPI: ESC CONTROL-_ Return
- 12 CPI: ESC CONTROL-_ CONTROL-K
- 15 CPI: CONTROL-I CONTROL-A ESC CONTROL-_ CONTROL-I CONTROL-A CONTROL-I

Lines per Inch
- 6 LPI: CONTROL-I CONTROL-A ESC CONTROL- ^ CONTROL-I CONTROL-A CONTROL-I
- 8 LPI: ESC CONTROL- ^ CONTROL-G

Boldface, Subscript and Superscript
- Boldface Begin: ESC O
- Boldface End: ESC &
- Subscript Begin: ESC U

Subscript End: ESC D
Superscript Begin: ESC D
Superscript End: ESC U

Underlining
Underline Begin: ESC E
Underline End: ESC R

Manufacturer: C. Itoh **Model: A10 - 20**

Characters per Inch
10 CPI: ESC E 1 2
12 CPI: ESC E 1 0

Lines per Inch
6 LPI: ESC L 0 8
8 LPI: ESC L 0 6

Boldface, Subscript and Superscript
Boldface Begin: ESC O
Boldface End: ESC &
Subscript Begin: ESC U
Subscript End: ESC D
Superscript Begin: ESC D
Superscript End: ESC U

Underlining
Underline Begin: ESC -
Underline End: ESC R

Manufacturer: C. Itoh **Model: 7500 EP**

Characters per Inch
5 CPI: ESC W CONTROL-A CONTROL-R
8 CPI: ESC W CONTROL-A CONTROL-O
10 CPI: ESC W CONTROL-@ CONTROL-R
17 CPI: ESC W CONTROL-@ CONTROL-O

Lines per Inch
6 LPI: ESC 2
8 LPI: ESC 0

Boldface, Subscript and Superscript
Boldface Begin: ESC E
Boldface End: ESC F
Subscript Begin: ESC S CONTROL-A
Subscript End: ESC T
Superscript Begin: ESC S CONTROL-@
Superscript End: ESC T

Underlining
Underline Begin: ESC - CONTROL-A
Underline End: ESC - CONTROL-@

Manufacturer: C. Itoh **Model: 8510B**

Characters per Inch
5 CPI: CONTROL-N ESC N
6 CPI: CONTROL-N ESC E
8 CPI: CONTROL-N ESC Q
10 CPI: CONTROL-O ESC N
12 CPI: CONTROL-O ESC E
17 CPI: CONTROL-O ESC Q

Lines per Inch
6 LPI: ESC A
8 LPI: ESC B

Boldface, Subscript and Superscript
Boldface Begin: ESC !
Boldface End: ESC "
Subscript Begin: Not Available
Subscript End: Not Available
Superscript Begin: Not Available
Superscript End: Not Available

Underlining
Underline Begin: ESC X
Underline End: ESC Y

Manufacturer: Computers Intl. **Model: Daisywriter**

Characters per Inch
10 CPI: ESC P
12 CPI: ESC E
15 CPI: ESC M

Lines per Inch
6 LPI: Not Available
8 LPI: Not Available

Boldface, Subscript and Superscript
Boldface Begin: ESC O
Boldface End: ESC &
Subscript Begin: ESC U
Subscript End: ESC D
Superscript Begin: ESC D
Superscript End: ESC U

Underlining
Underline Begin: ESC I
Underline End: ESC J

Manufacturer: Diablo **Model: 630**

Characters per Inch
5 CPI: ESC CONTROL-_ CONTROL-Y
6 CPI: ESC CONTROL-_ CONTROL-U
8 CPI: ESC CONTROL-_ CONTROL-P
10 CPI: ESC CONTROL-_ CONTROL-M
12 CPI: ESC CONTROL-_ CONTROL-K
15 CPI: CONTROL-I CONTROL-A ESC CONTROL-_ CONTROL-I CONTROL-A CONTROL-I

Lines per Inch
6 LPI: CONTROL-I CONTROL-A ESC CONTROL- ^ CONTROL-I CONTROL-A CONTROL-I
8 LPI: ESC CONTROL- ^ CONTROL-G

Boldface, Subscript and Superscript
Boldface Begin: ESC O
Boldface End: ESC &
Subscript Begin: ESC U
Subscript End: ESC D
Superscript Begin: ESC D
Superscript End: ESC U

Underlining
Underline Begin: ESC E
Underline End: ESC R

Manufacturer: Integral Data Sys. **Model: 440 & 445**

Characters per Inch
- 5 CPI: CONTROL-A CONTROL-]
- 6 CPI: CONTROL-A CONTROL-^
- 8 CPI: CONTROL-B CONTROL-\
- 10 CPI: CONTROL-B CONTROL-]
- 12 CPI: CONTROL-B CONTROL-^
- 15 CPI: CONTROL-B CONTROL-_

Lines per Inch
- 6 LPI: Not Available
- 8 LPI: Not Available

Boldface, Subscript and Superscript
- Boldface Begin: Not Available
- Boldface End: Not Available
- Subscript Begin: Not Available
- Subscript End: Not Available
- Superscript Begin: Not Available
- Superscript End: Not Available

Underlining
- Choose option 1: **Don't attempt underlining**

Manufacturer: Integral Data Sys. **Model: 460**

Characters per Inch
- 5 CPI: CONTROL-A CONTROL-]
- 6 CPI: CONTROL-A CONTROL-^
- 8 CPI: CONTROL-A CONTROL-_
- 10 CPI: CONTROL-B CONTROL-]
- 12 CPI: CONTROL-B CONTROL-^
- 17 CPI: CONTROL-B CONTROL-_

Lines per Inch
- 6 LPI: ESC B 8
- 8 LPI: ESC B 6

Boldface, Subscript and Superscript
- Boldface Begin: Not Available
- Boldface End: Not Available
- Subscript Begin: CONTROL-T

Subscript End: CONTROL-Y
Superscript Begin: CONTROL-Y
Superscript End: CONTROL-T

Underlining
Choose option 1: **Don't attempt underlining**

Manufacturer: Integral Data Sys. **Model: Prism 80 & 132**

Characters per Inch
5 CPI: CONTROL-A CONTROL-]
6 CPI: CONTROL-A CONTROL-^
8 CPI: CONTROL-A CONTROL-_
10 CPI: CONTROL-B CONTROL-]
12 CPI: CONTROL-B CONTROL-^
17 CPI: CONTROL-B CONTROL-_

Lines per Inch
6 LPI: ESC B 8 $
8 LPI: ESC B 6 $

Boldface, Subscript and Superscript
Boldface Begin: Not Available
Boldface End: Not Available
Subscript Begin: CONTROL-T
Subscript End: CONTROL-Y CONTROL-Y CONTROL-T
Superscript Begin: CONTROL-Y CONTROL-Y CONTROL-T
Superscript End: CONTROL-T

Underlining
Choose option 3: **Print character, backspace, underline**

Manufacturer: Juki **Model: 6000, 6100, 6300**

Characters per Inch
10 CPI: ESC CONTROL-_ CONTROL-M
12 CPI: ESC CONTROL-_ CONTROL-K
15 CPI: CONTROL-I CONTROL-A ESC CONTROL-_ CONTROL-I
CONTROL-A CONTROL-I

Lines per Inch
6 LPI: CONTROL-I CONTROL-A ESC CONTROL- ^ CONTROL-I CONTROL-A CONTROL-I
8 LPI: ESC CONTROL- ^ CONTROL-G

Boldface, Subscript and Superscript
Boldface Begin: ESC W
Boldface End: ESC &
Subscript Begin: ESC U
Subscript End: ESC D
Superscript Begin: ESC D
Superscript End: ESC U

Underlining
Underline Begin: ESC E
Underline End: ESC R

Manufacturer: Leading Edge **Model: Prowriter**

Characters per Inch
5 CPI: CONTROL-N ESC N
6 CPI: CONTROL-N ESC E
8 CPI: CONTROL-N ESC Q
10 CPI: CONTROL-O ESC N
12 CPI: CONTROL-O ESC E
17 CPI: CONTROL-O ESC Q

Lines per Inch
6 LPI: ESC A
8 LPI: ESC B

Boldface, Subscript and Superscript
Boldface Begin: ESC !
Boldface End: ESC "
Subscript Begin: Not Available
Subscript End: Not Available
Superscript Begin: Not Available
Superscript End: Not Available

Underlining
Underline Begin: ESC X
Underline End: ESC Y

Manufacturer: NEC **Model: PC 8023A-C**

Characters per Inch
- 5 CPI: CONTROL-N ESC N
- 6 CPI: CONTROL-N ESC E
- 8 CPI: CONTROL-N ESC Q
- 10 CPI: CONTROL-O ESC N
- 12 CPI: CONTROL-O ESC E
- 17 CPI: CONTROL-O ESC Q

Lines per Inch
- 6 LPI: ESC A
- 8 LPI: ESC B

Boldface, Subscript and Superscript
- Boldface Begin: ESC !
- Boldface End: ESC "
- Subscript Begin: Not Available
- Subscript End: Not Available
- Superscript Begin: Not Available
- Superscript End: Not Available

Underlining
- Underline Begin: ESC X
- Underline End: ESC Y

Manufacturer: Okidata **Model: Microline 92**

Characters per Inch
- 5 CPI: CONTROL- ^ CONTROL-_
- 6 CPI: CONTROL- \ CONTROL-_
- 8 CPI: CONTROL-] CONTROL-_
- 10 CPI: CONTROL- ^
- 12 CPI: CONTROL- \
- 17 CPI: CONTROL-]

Lines per Inch
- 6 LPI: ESC 6
- 8 LPI: ESC 8

Boldface, Subscript and Superscript
- Boldface Begin: ESC T
- Boldface End: ESC I

Subscript Begin: ESC L
Subscript End: ESC M
Superscript Begin: ESC J
Superscript End: ESC K

Underlining
Underline Begin: ESC C
Underline End: ESC D

Manufacturer: Panasonic **Model: KX-P1090**

Characters per Inch
5 CPI: CONTROL-R CONTROL-N ESC P CONTROL-A
6 CPI: CONTROL-R CONTROL-N ESC P CONTROL-@
10 CPI: CONTROL-R CONTROL-T ESC P CONTROL-A
12 CPI: CONTROL-R CONTROL-T ESC P CONTROL-@
17 CPI: CONTROL-O CONTROL-T

Lines per Inch
6 LPI: ESC 2
8 LPI: ESC 0

Boldface, Subscript and Superscript
Boldface Begin: ESC E
Boldface End: ESC F
Subscript Begin: ESC S CONTROL-A
Subscript End: ESC T
Superscript Begin: ESC S CONTROL-@
Superscript End: ESC T

Underlining
Underline Begin: ESC - CONTROL-A
Underline End: ESC - CONTROL-@

Manufacturer: Silver-Reed **Model: EXP-400**

Characters per Inch
10 CPI: ESC CONTROL-_ Return
12 CPI: ESC CONTROL-_ CONTROL-K
15 CPI: CONTROL-I CONTROL-A ESC CONTROL-_ CONTROL-I
CONTROL-A CONTROL-I

Lines per Inch
6 LPI: CONTROL-I CONTROL-A ESC CONTROL- ^ CONTROL-I CONTROL-A CONTROL-I
8 LPI: ESC CONTROL- ^ CONTROL-G

Boldface, Subscript and Superscript
Boldface Begin: ESC O
Boldface End: ESC &
Subscript Begin: ESC U
Subscript End: ESC D
Superscript Begin: ESC D
Superscript End: ESC U

Underlining
Underline Begin: ESC E
Underline End: ESC R

Manufacturer: Silver-Reed **Model: EXP-500 & EXP-550**

Characters per Inch
10 CPI: ESC CONTROL-_ Return
12 CPI: ESC CONTROL-_ CONTROL-K
15 CPI: CONTROL-I CONTROL-A ESC CONTROL-_ CONTROL-I CONTROL-A CONTROL-I

Lines per Inch
6 LPI: CONTROL-I CONTROL-A ESC CONTROL- ^ CONTROL-I CONTROL-A CONTROL-I
8 LPI: ESC CONTROL- ^ CONTROL-G

Boldface, Subscript and Superscript
Boldface Begin: Not Available
Boldface End: Not Available
Subscript Begin: ESC U
Subscript End: ESC D
Superscript Begin: ESC D
Superscript End: ESC U

Underlining
Choose option 3: **Print Character, backspace, underline**

Manufacturer: Teletex Comm. **Model: TTX-1014**

Characters per Inch
- 10 CPI: ESC P
- 12 CPI: ESC F
- 15 CPI: ESC M

Lines per Inch
- 6 LPI: ESC 6
- 8 LPI: Not Available

Boldface, Subscript and Superscript
- Boldface Begin: ESC O
- Boldface End: ESC &
- Subscript Begin: ESC U
- Subscript End: ESC D
- Superscript Begin: ESC D
- Superscript End: ESC U

Underlining
- Underline Begin: ESC E
- Underline End: ESC R

Manufacturer: Toshiba **Model: P1340**

Characters per Inch
- 5 CPI: ESC E 2 4
- 6 CPI: ESC E 2 0
- 10 CPI: ESC E 1 2
- 12 CPI: ESC E 1 0
- 15 CPI: ESC E 0 8
- 17 CPI: ESC E 0 7

Lines per Inch
- 6 LPI: ESC L 0 8
- 8 LPI: ESC L 0 6

Boldface, Subscript and Superscript
- Boldface Begin: Not Available
- Boldface End: Not Available
- Subscript Begin: ESC U
- Subscript End: ESC D

Superscript Begin: ESC D
Superscript End: ESC U

Underlining
Underline Begin: ESC I
Underline End: ESC J

GLOSSARY

Abort to terminate a procedure or operation prematurely.

Arranging sorting a list of entries. The arrange option is available in the data base and the spreadsheet applications.

ASCII a generally accepted method of representing characters by number values. Stands for the American Standard Code for Informational Interchange.

Backslash character (\ ) used in the MegaWorks program from Megahaus. It is located just under the DELETE key on your keyboard.

Blanking erasing the contents of a cell in a spreadsheet.

Block in the spreadsheet, a group of cells in adjacent rows and/or columns.

Boldface a printing feature offered by most printers. Characters printed in boldface appear darker than normal text.

Boot computerese term that means to start a program from the beginning. It also can mean to start up your computer.

Byte a unit of computer memory or disk storage. One byte of memory can store one character (letter, number, or symbol) of information.

Calculated Category in the data base "tables" report, a category that is created at the time the report is printed. It is the result of a mathematical operation (sum, product, etc.) involving one or more other categories.

Caret sometimes called the circumflex symbol (^), it is used by the word processor to indicate the beginning and ending of special printer features such as boldfacing and underlining. It is also used as the termination character when entering printer control codes.

Category in the data base, a topic or heading under which data can be entered. Other data base programs refer to categories as "fields."

Circumflex see **Caret**.

Clipboard part of AppleWorks' Desktop metaphor. It is a section of computer memory that can be used to store part of a document. Later, the contents of the Clipboard can be pasted into another document.

Configure customizing a computer program for your particular equipment.

Control Codes sequences of characters that instruct your printer to perform certain features, such as boldfacing and underlining.

Copy an AppleWorks command that duplicates a section of a document into a separate area of computer memory (the Clipboard) so that it can be pasted into a different document (or the same document in a different place).

Cursor a blinking character on your screen that tells you where the next typed character will appear.

Cut with the Copy or Move command, places the indicated section of a document on AppleWorks' Clipboard.

Default values for options that are selected for you by the program. For example, in the word processor, AppleWorks selects a value of 1 inch for the left (and right) margin. You are almost always free to change the default values to something different.

Desktop an AppleWorks term. All documents you are currently working with are said to be "on the Desktop," meaning that they are being held in your computer's memory and can be examined without accessing your data disk.

DIF stands for Data Interchange Format. A popular format for recording data from data base and spreadsheet programs. Files recorded in DIF from one program can be read by other programs that also use DIF files.

Disk Drive the component of your computer system that records or plays back your documents from disks.

Disk or Diskette the medium upon which your computer records (saves) your documents.

DOS 3.3 an operating system for Apple // computers, in use for many years.

Elite on a printer, 12 characters per inch printing width.

ESC represents the ESCAPE key on the keyboard. This key is used to move from one part of AppleWorks to another.

Exponentiation the raising of a number to a power. For example, 3 raised to the fourth power is 81.

Filename the name associated with a document you wish to store on (or retrieve from) disk. In ProDOS, a filename can be up to 15 characters (letters, numbers, or periods) long. The first character must be a letter. The filename is the last component of the Pathname.

Folder part of AppleWorks Desktop metaphor. Every section of AppleWorks exists in its own file folder. You generally move from one folder to another through menu selection or the ESC key.

Footer in the word processor, a single line that is printed at the bottom of each page of a document.

Formats set ways of printing out data. In the data base section, there are two general formats: Labels and Tables.

Formatting a process that prepares a blank disk to receive data. All newly purchased disks must be formatted before they can be used.

From Scratch to create a document by yourself, rather than using a previously created file.

Global referring to the entire document. For example, a global search would be a search through the document from beginning to end.

Header in the word processor, a single line that is printed at the top of each page of a document.

Heading in the data base or spreadsheet, one or more lines printed at the top of each page of a report. Headings contain information such as the name of the document, the date, category names (in a data base "Tables" report), report name, page number, etc.

Highlight on the screen, to show a word (or group of words) with black letters against a light background.

Initialization Code required by all printer interface cards used on the Apple][+ and //e. It consists of a string of characters, usually beginning with CONTROL-I. The code sequence is generally different for each brand of interface card.

Insert Cursor indicated by a blinking underline. This cursor causes typed characters to be inserted into the existing text at the cursor position.

Integrated a term used to describe two or more applications that can share data.

Justified to print out text even with the left and right margins.

Kilobyte one-thousand bytes of computer memory or disk storage.

Labels Report one of two report formats in the data base. It features multiple line output with one or more categories per line and is used primarily to produce mailing labels.

Layout in the data base, describes the placement of categories on the screen. In the spreadsheet, describes the way labels and values will be displayed.

Marker in the word processor, an invisible indicator that can be inserted into the text of a document so that you can find this point at some later time with the Find Marker command.

Megabyte one-million bytes of computer memory or disk storage space.

Merge combining two or more documents. The usual merge is with a word processing letter and a data base file to create personalized form letters.

Modem stands for MOdulator/DEModulator. It is a computer peripheral that allows your Apple to send and receive data over telephone lines.

Motherboard your Apple's main logic circuit board.

Move an AppleWorks command that copies a section of a document into a separate area of computer memory (the Clipboard), and then erases the section from the document. The section can then be pasted into another document, or into a different spot in the same document.

Multiple Record Format one of two display formats in the data base. It displays up to 80 characters of data from up to 15 records on a single screen.

 represents the OPEN APPLE key on your keyboard.

Operating System a set of instructions telling your computer how to save and load programs and data from disks. DOS 3.3 and ProDOS are operating systems.

Overstrike Cursor indicated by a blinking box. This cursor causes typed characters to replace existing ones at the cursor position.

Pagination automatic page numbering. In the word processor, you must set up pagination. In the data base and the spreadsheet, AppleWorks will number the pages for you.

Parallel one of two methods of transmitting data to printers; the other is serial.

Paste inserts text from AppleWorks' Clipboard into a document at the location of the cursor.

Pathname a combination of the volume name, subdirectory name (optional), and filename. The Pathname begins with a slash ("/") and uses a slash to separate each component.

Peripherals devices for getting data into and out of your computer. Keyboards and printers are examples of peripherals.

Pica on a printer, a printing width of 10 characters per inch.

Platen Width the actual distance your printer's print head moves from full left to full right positions.

Port on an Apple //c, one of two serial outputs used to communicate between the //c and a printer or modem.

Prefix the volume name (and, optionally, the subdirectory name) part of a file's Pathname. AppleWorks allows you to set a particular ProDOS prefix instead of specifying disk drive 1 or 2.

Processor sometimes referred to as the CPU (Central Processing Unit), it is the brain of your computer. Modern Apple //s use the 65C02 as their CPU; older models use the 6502.

ProDOS a new operating system for Apple // computers. AppleWorks is written under ProDOS.

Profile a hard disk drive mass storage device. It comes in 5 and 10 megabyte sizes. The 5 megabyte version can store the equivalent of 35 disks of data.

Program Disk the second of two AppleWorks disks.

Proportional Printing on a printer, advancing the print head by different widths, depending on the width of the character being printed. In nonproportional printing, the print head always advances by the same amount for each character, regardless of the character's width.

RAM acronym for Random Access Memory. It refers to your computer's internal memory (64K or 128K). This is the maximum memory your computer starts with when you turn it on. Both the AppleWorks program and the documents you're working on are kept in RAM.

Serial one of two methods of transmitting data to printers; the other is parallel.

Single Record Format one of two display formats in the data base. It displays all of the data from all of the categories in a single record.

Slot on the Apple][+ or //e, slots are connectors inside the computer that allow you to attach peripherals such as disk drives, printers, etc.

Spreadsheet one of three AppleWorks applications. It allows you to create mathematical models of situations such as mortgage payment schedules, expense reports, etc.

Startup Disk the first of the two AppleWorks disks.

String a group of characters (letters, numbers, and symbols).

Subdirectory a portion of a disk volume. In ProDOS, a disk may be subdivided into one or more sections, called subdirectories. Subdirectories can, themselves, be further divided into separate subdirectories.

Subscripting the printing of characters half a line below the normal printed line.

Superscripting the printing of characters half a line above the normal printed line.

Synchronize in the spreadsheet, when the split screen option is used, the **Synchronize** option causes the two views of the spreadsheet to scroll together.

Tables Report one of two report formats in the data base. It features single line output, category totals, group totals, and calculated categories.

Tractor on a printer, the mechanism that holds and moves pin-feed paper through the printer.

Truncate with the INT function in the spreadsheet, to throw away the part of the number that follows the decimal point.

Unsynchronize in the spreadsheet, when the split screen option is used, allows each of the two views of the spreadsheet to scroll independent of the other.

Volume Name in ProDOS, the name given to each disk when it is initialized. The volume name is always the first component of the Pathname.

Word Wraparound in the word processor, this feature assures that a word at the end of a line on your screen will not be split, with some of it at the end of one line and the rest at the beginning of the next line. Instead, the entire word is brought to the beginning of the next line.

Zoom in the word processor, allows you to see print formatting commands. In the data base, switches between single and multiple record formats. In the spreadsheet, switches between formulas and results in value cells.

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